24931/B/1

SOLIS 1821

BRIGHTON AND SUSSEX

Medico-Chirurgical Society.

EXTRACT

FROM THE

REGULATIONS OF THE LIBRARY.

5. All books shall be returned half-yearly on January 1 and July 1 that they may be inspected by the Committee.

6. Any member having had a book out in his name for a fortnight detaining it after it has been applied for by the Honorary Secretaries shall be fined sixpence per day for each volume so detained.

7. Each member shall be held accountable for and shall make good any injury to or loss of any volume or series of volumes belonging to the Society while in his possession.

8. Any member who may notice an imperfection of any volume belonging to the Society is requested to make the same known to the Librarian.

24931/B/1

From the Translator

Dr Yoosh

BRIGHTON AND SUSSEX

Medico-Chirurgical Society.

EXTRACT

FROM THE

REGULATIONS OF THE LIBRARY.

5. All books shall be returned half-yearly, on January 1 and July 1, that they may be inspected by the Committee.

6. Any member having had a book out in his name for a fortnight detaining it after it has been applied for by the Honorary Secretaries, shall be fined sixpence per day for each volume so detained.

7. Each member shall be held accountable for and shall make good any injury to or loss of any volume or series of volumes belonging to the Society while in his possession.

8. Any member who may notice an imperfection of any volume belonging to the Society is requested to make the same known to the Librarian.

52051

A

TREATISE

ON THE

HYDROCEPHALUS ACUTUS,

OR

INFLAMMATORY

WATER IN THE HEAD.

BY

LEOPOLD ANTHONY GOLIS,

PHYSICIAN AND DIRECTOR TO THE INSTITUTE FOR THE SICK CHILDREN OF THE POOR AT VIENNA.

TRANSLATED FROM THE GERMAN,

By ROBERT GOOCH, M.D.

LONDON:

PRINTED FOR LONGMAN, HURST, REES, ORME, AND BROWN,

PATERNOSTER-ROW.

1821.

52051



Printed by A. and R. Spottiswoode,
Printers-Street, London.

THE

TRANSLATOR'S PREFACE.

At Vienna there is an Institute for the sick children of the poor, to which Dr. Gòlis has been physician ever since the year 1793. In Germany he has a great reputation. With opportunities for observation which no other man ever enjoyed, and practical talents of a very high order, he has written the best book I ever read on the acute hydrocephalus. The reader whom it will most benefit, is not the student in search of elementary information, but the practitioner, whom experience has already familiarized with the ordinary appearances, and the customary treatment of the disease. The pathology, though not new, is ably and

convincingly made out. The water-stroke will be recognized by the experienced reader; it is well named, and it deserved to be distinguished. The chapters descriptive of the successive stages of the acute hydrocephalus reminded me almost painfully of what I had witnessed in those cases, which I not only attended, but almost nursed through the disease. But the chapters in which he discloses his mode of employing his remedies, display a master of his art; he has obviously been no hasty visitor to the sick-room, but has entered into all the circumstances of the disease, and all the difficulties of the treatment, and has provided for them with prodigious, perhaps, redundant resources. Like all books, it has its weak parts. The chapters on diagnosis are of minor value, needlessly minute, and, in some parts, of questionable accuracy. The chapters on the predisposing and exciting causes, like similar chapters in other medical books, seem to be written for form's sake, and make pretensions to more knowledge than physicians really possess. The worm-fever,

I apprehend, is what we call the remitting fever of children. There are some parts which I cannot satisfactorily understand; what the masked fatal intermittent is, I can neither guess nor learn; I should be puzzled to prepare the decoctions according to the formulæ given. The reader will start when he comes to the little girl eighteen months old, who was affected with the gout (Case XI.); but, in Germany, gout means many things beside a swelled toe — many things which an English physician would not think of referring to it.

In executing this Translation, many Germanisms must have escaped my pen; these I hope the Reader will excuse: in the performance of such a task, the chief requisite is clearness; comeliness of language is scarcely to be expected.

AUTHOR'S PREFACE.

The present treatise on the Acute Hydrocephalus, I offer as a work, practical, simple, true to nature, without modern phrase, and without prepossession for any system. I have related only facts. For more than eighteen years I have bestowed the strictest attention on this destructive disease, and as yearly it occurred more frequently, my opinions and conclusions about the nature of its symptoms, about the principal impediments to its detection, and about the rare success of its treatment, became confirmed. These difficulties redoubled the zeal of my enquiry, and while I carefully read every thing which

had hitherto been written about this disease, and carefully compared what I had read in the smallest particulars, with what I observed, I directed my especial attention to the opening of bodies; they afforded me the most satisfactory test of my diagnosis, they instructed me in the proper seat of the disease, in the morbid changes of the contents of the cranium, they often disclosed to me not unimportant differences; lastly, they served not seldom to prove to other physicians the existence of the acute hydrocephalus, which they had denied. I have already opened 180 bodies of those who have died of this disease, and always accurately examined them, in the presence of several physicians and surgeons; and supported by their testimony, I can confidently say, that they always found the accuracy of my diagnosis confirmed.

From my anxiety to be useful to mankind, from the zeal with which I have investigated the nature of this disease, and from the extensive experience which in my practical circle was necessarily afforded me, I con-

sider myself at length in a state to impart to my professional brethren the results of my labours. Far from the vain thought of fixing the doubtful diagnosis of this destructive disease with perfect certainty, or of giving the highest degree of efficacy to its deficient treatment, my efforts go only thus far: — to assist the young physician, who is little experienced in the clinical management of the diseases of children, and, from various obstacles, cannot easily procure instruction of this kind; and afford a picture, copied from nature, of this disease, which, rightly comprehended, would leave him doubtful only in rare cases of complication, and almost always afford him a diagnosis to be relied on. With the same view, I may follow up this treatise with an account of other diseases of childhood; and should I supply, only in some degree, the want of practical books on the diseases of children, and thus become useful to my younger colleagues; and should experienced, true Hippocratic physicians acknowledge my efforts to be serviceable to mankind, and to our divine art, my most ardent wishes

will be attained, and that voice*, which louldly called on me to afford from my affluence of experience a warning to mothers, will at length be silenced.

* See the Gottinger gelehrte Anzeigen for April 1810.

A TREATISE

ON THE

HYDROCEPHALUS ACUTUS.

DROPSY OF THE HEAD AND BRAIN.

DROPSY of the head and brain is a collection of serous, lymphatic, or puriform fluid, or of a mixture of these, in the cavities of the cranium, or in those of the brain.

From the facts collected and recorded by practical physicians, it appears that this disease sometimes is a primary disease of the cranium, sometimes is the consequence of a pre-existing disease, sometimes arises from the translated material of some disease, exhalation, or excretion from other parts of the body to the head, sometimes from the suffering of an organ which sympathises readily with the brain: hence dropsy of the

head has been divided into the idiopathic, the symptomatic, the metastatic, and the sympathetic.

With regard to the place in which the effused fluids are met with, writers distinguish the dropsy of the head into an external, an internal, and a complicated, consisting of both; of the first they make two, of the last four subdivisions.

The external dropsy of the head is that where the fluid is collected in the cellular substance, between the scalp and the pericranium, or between the pericranium and the cranium; the internal, where the extravasated fluid is found within the cavities of the skull; the complicated where the fluid without communicates with that within.

The internal dropsy of the head is distinguished, first, into that where the effused fluid is found between the cranium and the dura mater; secondly, where it is found between the dura mater, and the pia mater; thirdly between the latter and the brain; and fourthly, in the cavities of the brain itself.

The immortal Peter Frank entirely omits that dropsy of the head, where the fluid is collected between the cranium and the dura mater, because he, like myself, and many other physicians had never met with it. He divided the internal dropsy of the head into hydrocephalum meningeum, where the fluid was found between the membranes of the brain ; and into hydrocephalum encephaloideum, where it was found in the cavities of the brain itself. This last, according to the testimony of the greatest practical physicians, is the most frequent, (as Vesalius has already remarked) that which requires the promptest aid, and which has hitherto been the most negligently observed. Petit, Whytt, and others, who recognised an external water of the head, and also a threefold internal water of the head, have given on the diagnosis an opinion like that of Vesalius. Baader speaks only of the internal dropsy of the head.

With regard to the nature and properties of the fluid effused within the head, it is sometimes like clear water, sometimes

coagulated lymph, sometimes pus, sometimes a mixture of these fluids. Hence arises the division into serous, lymphatic, puriform, and mixed dropsy of the head. In the last, extravasated blood is sometimes found, as the case of little P., No. 27. shows.

As this disease lasts sometimes only a few hours, sometimes from thirteen to seventeen days, more rarely twenty-one, twenty-four, thirty, or forty days, sometimes months, or years, dropsy of the head may be divided into the hyper-acute, the acute, and the chronic. Under the last comes the encysted dropsy of the head, of which Wepfer and Eusebius Squario Racolta make mention. Cullen comprehends the hyper-acute and the acute under the name apoplexia hydrocephalica.

This last division into the hyper-acute, the acute, and the chronic, is in a practical point of view of great importance. That physician, who, at the beginning of a hydrocephalic disease, or at his first visit, can determine which symptoms indicate

the hyper-acute, which the acute, and which the chronic water of the head, will lay down a more accurate plan of treatment and prognosis than he who is ignorant of these important distinctions.

OF THE WATER-STROKE.

The hydrocephalus *hyper*acutus, apoplexia hydrocephalica, wasserschlag, literally water-stroke, is a *sudden* effusion of fluid within the brain, either occurring idiopathically, or the consequence of the repelled matter of a previous disease (defect of crisis), or the consequence of obstructed evacuation from an excreting organ, from which death occurs in a few hours. To this belong all those depositions on the brain which arise from small-pox, measles, erysipelas, and other febrile eruptions; also those convulsions which follow the sudden cessation of chronic, or habitual discharges, the repulsion of chronic eruptions, as crusta lactea, tinea, discharges from the ears, and the like, or

from diarrhœa, dysentery, general perspiration when the same has been suddenly stopped without previous perceptible turgescence or inflammation. In all these cases of sudden death, there is found, on examining the bodies, an effusion of fluid in the head, for the most part in the ventricles of the brain itself.

According to this account, it would appear, that in apoplexia hydrocephalica, the stages of turgescence and of inflammation are wanting, a circumstance which distinguishes this form of the disease from the acute hydrocephalus, and that the stages of transudation and of palsy run into one another, so that the two first cannot be detected, and the two last can scarcely be distinguished from one another; and yet I have found, as did also my friend the late Dr. Treber, in the bodies of those who have died of this disease, traces of turgescence and inflammation sometimes very apparent, sometimes less distinct. The effused fluids we always found turbid, never so clear as in hydrocephalus, and much less coagulable

lymph, which circumstance has led us to suspect that the lymph was partly mixed with the serum, and that the whole mass of fluid was an altered product of a morbid action of the vessels.

The diagnosis of the water-stroke may be easily deduced from the symptoms of the third and fourth stages of the acute hydrocephalus (afterwards to be described); most commonly the attendants and relatives of the patient will contribute important information; I say most commonly, because there are cases where no cause is discovered. An infant, eighteen months old, was placed in bed playful and laughing; about ten at night its mother left it sleeping tranquilly, but the next morning it was found dead. The same happened to a healthy infant six months old, which went to sleep at the breast of its nurse, but the next morning was found dead by her side. I firmly believed that the child had been overlaid, and thus suffocated; but the accurate inspection of the body discovered no trace of such a mode of death; the blood

vessels were somewhat turgid, and two ounces of turbid serum were found in the cavities of the brain.

As those who are seized by this disease commonly perish before the most active remedies, applied at the earliest period, can have time to produce any effect, the object of treatment is little else than to prevent the reproaches of relatives for making no attempt to relieve or save the patient.

OF THE HYDROCEPHALUS ACUTUS.

In this disease the effusion is always a secondary disease from a previous turgescence, and inflammation of the membranes or the vessels of the brain, (according to Rush, Markus, Stark, Spengel, Girtanner, Rand, Lieutand, Henke, Speyer, a Phrenicula,) and consists in a collection of serum, and of coagulable lymph, within the cavities of the cranium, of which the former is found in the ventricles, or in the substance of the

brain ; the latter, like a membrane, fills the depths of the convolutions, lines the walls of the ventricles as a preternatural coat, and covers the basis of the cranium, hindering the absorption of the effused fluid.

A belief in the inflammatory nature of this disease is founded on the symptoms and pathognomonic signs, which are those of encephalitis, on the influence of antiphlogistic remedies, with external and internal evacuants and counter-irritants, and on the appearances found in those who have died of this disease, which must have had inflammation as their precursor.

This disease may occur at any period of life, but it is most frequent and dangerous during childhood, attacking infants even in the first days of their existence, occurring more frequently about the period of dentition, or even afterwards, without any distinct deformity of the head.

When we have an opportunity of watching this disease from its commencement to

its termination, we find that in its progress it has periods or stages which are distinguished from one another by the pathognomonic signs of each. In this respect I will follow nature, and relate the symptoms according to the order of time in which they occur; endeavour to distinguish that which marks the boundary between one stage, and that which follows, and divide the course of the disease into as many periods as I have remarked by an attentive observation of the changes which it undergoes.

Of such changes, stages, or periods, there are four in number, viz. that of turgescence towards the head, of local inflammation in the cranium, of effusion after previous inflammation, and the stage of palsy.

Some writers, passing over the stage of turgescence, or describing it only as the approach (Peter Frank), mention with Conradi and Rush two stages; Whytt, Quin, Cheyne, Tissot, Vanhoven, Baader, Konsbruch, Plenk, Sprengel, and others, describe three periods of this disease, and Forney and Von Porten-

schlag describe none. Also, in determining what symptoms indicate the first, second, or third stages, they differ greatly. This difference depends, not so much on inaccurate observation, as on the irregular progress of this disease, when it meets with other diseases in the same subject, or when it follows previous chronic diseases, or acute fevers, with or without eruptions. To the most skilful and experienced physician, it is often a difficult task, from the symptoms present, (which, from the influence of complications, have been thrown into disorder,) to mark the stage of the disease in which the unhappy patient is found.

COMMENCEMENT AND PROGRESS OF TURGESCENCE.

Children begin to be indifferent to things which amused them, and persons whom they loved; their activity, vivacity, good temper, vanish; they become silent, irritable, and surly; dislike light and notice; the lively

colour of their countenance begins to fade *, the brightness of their eyes grows dim, their elastic muscles relax, the full round form of their body vanishes, and their delightful sprightliness passes into dullness; they go seldom to stool, pass little urine, eat and drink with little pleasure, wake out of their sleep, in which they mumble and talk, weaker than they were before. The larger children, (as Thomson has remarked,) on rising out of bed, or sitting up, complain of giddiness; the smaller express the same by a certain rocking of the head, and by suddenly becoming silent in the midst of a cry; the former complain (as Odier, Schmalz, Whytt, have remarked) of rheumatic pains in the limbs, but particularly in the nape of the neck, in the calves of the legs, and soles of the feet; the latter express the same by moving their hands towards the back of the head, and by a whine denoting pain; the pulse, which deviates little or not at all from its natural

* In those cases only, in which to this stage the following succeeds with violence, we remark the countenance flushed for a few minutes before the transition into the encephalitic state.

quickness, is found, on an attentive examination, to beat oftentimes a few beats weaker, and sometimes to intermit altogether ; it is commonly the seventh, ninth, sixteenth, seventeenth, or one-and-thirtieth beat which the finger feels weaker, or not at all ; their skin is dry without any perspiration ; from a state like reverie, they wake with a deep sigh, and begin again to notice those about them of whom they had been apparently unconscious ; the colour of the face changes, they complain now of flushings, then of passing chills. To the question whether any thing ails them, they answer with an indifferent " no." When they walk, their gait (as Wichmann, Falkner, Ford, Schmalz, Forney, and many other practical physicians, have remarked, and as I can corroborate by many hundred cases) is laborious, without equipoise and firmness. In stepping forward they often raise the foot, as if they were stepping over a threshold ; they totter and stagger as if drunk.

These are the appearances which in healthy children commonly precede the

local inflammation, and sometimes more, sometimes less forcibly strike the attention of the practitioner, according to the cause of the disease and the constitution of the patient. Most of them, it is true, may be, and often are the forerunners of other diseases, but a careful consideration of all the connected circumstances, and of the great frequency of the acute hydrocephalus, will guide the physician in his diagnosis.

In feeble, irritable, sensitive children, with an hereditary tendency to the disease, or in those who have already suffered from some other protracted illness, (especially from a chronic collection of water in the cavities of the brain, with general glandular disease, or scrofula of the abdominal viscera, from difficult dentition, from weak digestion, with repeated vomiting and such like;) the beginning of this destructive disease is almost always overlooked, because the additional symptoms are less distinguishable, and are easily referred by the most experienced physicians to some other disease. I speak here from mani-

fold experience, and willingly confess, that, not only in my early years I have often overlooked the commencing moment of the acute hydrocephalus, but that even now, under the above-mentioned circumstances, I am often unable to distinguish the symptoms of turgescence from those of the previous disease, particularly if I have not known the patient long before, and am compelled to form my diagnosis from what the bye-standers relate concerning the progress of the disease.

Indifference succeeding to increased sensibility and irritability; a constipated state after habitual looseness or diarrhœa; a scanty, unusually yellow urine, with or without sediment; dryness of the skin, which, previously, on the slightest exercise, even on eating and drinking, and particularly during sleep, perspired profusely; sleep without medicine often suddenly occurring in restless children; remarkable gravity and earnestness, which had never been previously noticed; these taken together, with the symptoms already men-

tioned, are the signs by which the turgescence of hydrocephalus may with great justice be suspected.

Equally, or even more difficult is it to distinguish the turgescence of this disease in infants of one, two, three, or four months, as little patients of this age frequently vomit even in the healthy state, wake suddenly with a cry, become soporose from slight overloading of stomach, and their pulse, from trifling indigestion, or even in the best health, frequently deviates from its natural regularity. I have often seen this, particularly in the infant of Lewis P., whose pulse in the first days and months of its life was so irregular that I suspected an organic defect of the heart, but who at this time is a robust child of four years old.

Sleeplessness, unusual continued screaming, without signs of any other disease, with throwing back the head and bending back the spine; panting almost to breathlessness during these screams; hanging the

head after such attacks; alarm on the gentlest touch; increased sensibility of the eyes to strong light; an excessive quickness of hearing, so that out of the best sleep by the slightest noise they wake terrified, which appearances had never been noticed before that illness; diminished appetite; an entire absence of thirst in children who were before always willing to taste; a cry denoting pain on slight, but suddenly becoming silent at quick movements of the body; constant pulling the nape of the neck with the hand; lying on the side in bed with retracted head, which before this illness was not remarked; scanty urine, colouring the napkins more than formerly; fewer evacuations by stool, which after being passed assume a dark-green colour, which appearances were not formerly observed; a total silence of flatus, which formerly was frequently passed audibly; increased warmth of the head, particularly of the forehead and nape of the neck:—these symptoms, with an attentive consideration of the patient, the reigning diseases, and the never-to-be-for-

gotten frequency of this disease, will best guide the practitioner in his diagnosis.

The above mode of approach in the acute hydrocephalus is the most frequent, for the patient the most dangerous, and for the honour of the physician, if he has many such patients to treat, the most injurious.

Lastly, the rarest mode of approach, (would it were the most common !) is the tumultuous; that is, where the liveliest and healthiest children, after a sudden accession of languor, confusion, giddiness, vehement head-ache, pulling at the nape of the neck, stiff neck, uneasiness of stomach, inclination to vomit with or without some manifest cause, full, hard, slow pulse, sensibility of the eyes to feeble light, singing in the ears — these appearances, which indicate turgescence having lasted a very short time, they are suddenly seized with violent fever, most commonly with frightful convulsions ; these alarming symptoms of affection of the head, are far more

likely than those which have been previously described to excite in the by-standers and relatives attention and anxiety, and induce them to seek for the immediate attendance of the physician. If the practitioner is called in proper time to this manifest expression of encephalitis, and employs the necessary remedies with activity, effusion is arrested much easier than in the former cases, and thus a greater number of sufferers, who are attacked by this frightful disease, may be snatched from death. But if the physician has not a clear view of the disease, or if he does not apply the necessary remedies with overwhelming power, there follows in a few cases, after one, two, or three days, but most commonly in a few hours, the moment of effusion, which may be recognised by its characteristic symptoms, and which is soon followed by the stage of palsy, in which the patient is irrecoverably lost. The duration of turgescence is frequently only a few hours, but often eight, ten, fourteen, and even more days.

Less difficult is the diagnosis of the inflammatory period, or second stage.

THE SECOND STAGE, OR INFLAMMATORY PERIOD.

Here the signs of turgescence are lost, and those of the phrenitic state show themselves. The patients begin to complain, in one of the ways above described, of severe pains in the forehead, pressing upon the eyes, sometimes alternating with colic pains ; also of pains in the limbs, and a considerable tension and shooting sensation in the nape of the neck, more violent than in the former stage. These pains, however, are often very slight, and this may be the reason why many physicians doubt the local inflammation in the cranium. Tortured by their inward feelings, there is no place on which they can lie still, and no person who can soothe them ; the eye shrinks from the light, and begins to retreat into its socket it opens perfectly only in the

dusk; in stronger light it is very sensible; scarcely half covered by its shade, it endeavours to hide itself from the light that falls upon it, and shrinks above the upper eye-lid: this appearance Whytt, Aerey, Thomson, Weaver, Wilmer, Odier, Baader, Sprengel, Schmalz, and others have remarked, but not all have stated which stage of acute hydrocephalus it indicated. The head is hot to the hand, particularly the forehead and the nape of the neck; but neither this nor any other part of the surface of the body is red, nor its vessels turgid. Excepting in the tumultuous accession of the inflammatory period, in which the albuginea is streaked with blood, and the inner surface of the eye-lid is commonly inflamed; excepting also a complication, with a febrile eruption, or with a chronic inflammation of the eye, I have found these parts always pale.

It was only in the first of the above-mentioned circumstances, that in this stage of the disease convulsive, trembling movements of the eyes were observed; the

pulsations of the carotids both feel and look strong; the pale countenance, which a few days before had been round, and full, falls in, or, in a few rare cases, becomes edematous, and assumes a strange shape, as Portenschlag, Odier, and Sprengel, have remarked.

The first says "the glance, the features and complexion, the voice, the movements, the actions, and sentiments, of patients in the acute hydrocephalus, if they have been known to the physician before the commencement of the disease, are very different to what he remembers in health;" and the last says, "this disease has a more distinct physiognomy than any other."

I reckon these changes in the features and appearance among the pathognomonic signs of acute hydrocephalus: the nose is always dry; the lips, formerly rosy, become pale, are of a faint dark-red, and crack from dryness; the tongue, which at first was clean, now becomes covered with a white or brownish-yellow fur; thirst and appetite

in most cases entirely cease; only in the tumultuous accession the first is sometimes insatiable, and a few at this moment of the disease long after food and drink; the patients vomit commonly four or six times within the twenty-four hours, but this vomiting becomes less frequent with the advance to the following stage, sometimes ceases entirely, but when it continues is aggravated when the patient moves or sits up in bed; digestion, which in the former stage had begun to be weak, most commonly ceases; food taken many days before is often passed undigested, with much slime, and a peculiar foul smell, often only mixed with saliva with a greenish-yellow bile, and a little slime. In the tumultuous accession of this disease some patients are constantly chewing; the breathing is often interrupted with sighs.

The breath has in most cases, at this period, that peculiar bad smell, which Whytt and Sprengel have remarked, but Cheyne will not acknowledge; the region of the stomach and liver is, on strong pressure,

found to be tender; the belly, which in many had been formerly tumid, falls in without any increased excretion by stool. I consider the falling in of the belly one of the pathognomonic signs of acute hydrocephalus; it is, as I shall show in the proper place, the surest distinction of this disease from typhus. I have seen in typhus, when acute hydrocephalus supervened, on the accession of this last, the meteorismus vanish; but never, as Portenschlag (the father), Baader, Vanhoven, Sprengel and others, have I seen the belly tumid with air: only in the water-stroke, when it arises in the progress of a worm-fever, or of a nervous fever, can I corroborate this observation.

The bowels often remain obstinately constipated, in spite of purgatives and injections; the stools are gluey, most commonly brown, sometimes yellowish-green, only during the use of calomel green in all shades, and not very fœtid: flatus scarcely ever passes; when it does, as Portenschlag has remarked, may it not have been in the

hyper-acute, or in complication with other diseases?

The urine is always scanty, and often passed with pain; at the beginning turbid and white, but in the following stages it is passed of a bright yellow, with the characteristic white, heavy, slimy deposit: if at this moment of the disease this sediment should form, the urine still remains turbid, smells little, but breaks soon after, and affects the smell. A brick-dust sediment, of which Quin speaks, I have never, in any stage of the disease, seen: might not the case have been a febris intermittens larvata perniciosa? Likewise, I have never found the sediment in great quantity as Odier describes.

The sense of hearing now becomes acute; loud sounds are painful; a constant moan and complaint of pains in the belly, nape of the neck, and the head particularly, excite in the highest degree the pity of the attendants. The nights are for the most part sleepless, or the sleep

is disturbed; they often grind their teeth, dream much, and cry out in their dreams; only pressing questions compel them to answer with a few words; their movements are languid and compulsory; they sit up with difficulty to drink, or for other purposes, and cannot keep long in a sitting posture without support, and without nausea and vomiting following. The pulse is now like that of an old man, slow, unequal, and intermitting. During the slow pulsations, one often feels a little feeble intervening stroke; if the patients by any sudden thought, frightful dream, or great pain in the head, are waked out of their slumber, the quickness of the pulse doubles in a moment. This pulse, in uncomplicated cases, according to my experience, always accompanies this period of the disease, and affords, therefore, a pathognomonic sign of the second stage, combined with the other symptoms of hydrocephalus.

The skin, which a short time before was tense, becomes flaccid, dry, and discoloured.

Now that eruption sometimes begins to show itself about the lips, neck, and shoulders, which Forney considers pathognomic, but which is distinctly to be remarked in the stage of effusion and palsy. The patients now commonly lie on one side or the other indifferently, the hand of the same side on which they lie under the head, the other hand now outstretched along the side, now moved towards the head, but only for a few minutes. When they wake out of their slumber they want to be placed now in the mother's lap, then in bed again ; in every direction, place, and situation they feel uneasiness and pains, which they in vain hope to diminish by change of posture.

Where the disease has commenced with violent phrenitic symptoms, after a short turgescence, I have, with Baader, found a feverish pulse in many cases, but never in the slow transition to local inflammation. Likewise the statement — "the more violent the fever, the stronger the head-ache," I have not found true. I hear the sufferers

with the preternaturally slow pulse, as well as with the feverish, with equal loudness complain of distressing pain. A generally increased heat of body, and febrile heat in the acute hydrocephalus, I have found only under the first mentioned circumstances. In other cases, the fever first occurs during the stage of palsy. Even in the stage of effusion, excepting the head, nape of the neck, and præcordia, in the remaining surface, the natural warmth seems to be lessened.

THE THIRD STAGE, OR PERIOD OF EFFUSION.

Most of the above described symptoms, after lasting from a few hours to two, four, six, or even more days, begin to grow worse. The little patients can no longer remain out of bed, nor sit upright, even supported by others, still less stand. The restless desire for a frequent change of posture ceases; they no longer desire to be moved now on the mother's or the

nurse's lap, now in bed, now from one bed to another, as they often did at the beginning of the former stage; they are willing to lie still in bed, placing themselves in an oblique posture, with the head towards the right when they lie on the right side, and with the feet to the left, and inversely when they lie on the left side. But the most common posture in this stage is on the back, in which the patients, with one or both feet, are constantly kicking up the bed-clothes. Often, particularly when lying on the back, they draw up one leg, so that the heel approaches the nates, the knee being upright; they swing the limb, thus bent, left and right, and after a time, stretch it out to its full length. While the patients make these movements with the legs, they move the hand of the same side, now to the head, now to the mouth, then again to the dry nostrils; into the last they bore, often so roughly as to make the nose bleed; the tones, which in this stage they utter, or the few distinguishable words which they attempt, and at the moment when they would express them, half forget, and very

slowly utter, are nasal tones. Frequently they bore with their fingers into one or other ear, which, from the trembling of their hand, they often for a long time cannot reach or find; frequently they catch at an eye as if they would pluck it out of its socket, or pull themselves by the hair of their head; from their dry, cracked lips, which they nip with their fingers, and bite with their teeth, they try to pick off the skin. All the external senses, except hearing, which in this stage is often very quick, become dull or annihilated; the sensibility of the eyes, which in the former stage was morbidly raised, becomes reduced to a great degree of dullness; their focus is dislocated; their oblique glance is directed downwards; their pupils are dilated, or their movements involuntarily oscillating, yet very senseless even to strong light; their sight is weak and deceptive; objects held before their eyes they perceive indistinctly, and often see double; often they try to reach them in a wrong direction, or think them more distant than they really are, and miss them when they

reach out their trembling hands. At every deep sigh they moan; often they open their eyes wide, then shut them again close, and repeat this opening and shutting for one or two minutes. A gloomy earnestness is at the same time painted in their flushed countenance with a threatening expression; the scene is succeeded by a short interval, in which all their pitiable expression returns: it is a curious contrast of fierceness and patience; feelings, which in the interior of the wretched patient, succeed one another so rapidly, and express themselves on his countenance, set the inexperienced physician and by-standers in utter astonishment.

They waste to a skeleton; their dry flabby skin hangs on their emaciated legs; all the activity of this important organ has ceased; only here and there partial sweats break out. The urine, which is the same as in the former stage, is passed unconsciously; a stool seldom follows even large doses of calomel, without a glyster, and is for the most part natural in

consistence, soft, pap-like or figured, brown, black, stinking. Diarrhœa, without purgatives, is one of the rarest appearances; I have seldom seen it; and when I have, the stools were green, watery, slimy, and attended with great pain. The pulse increases in irregularity and weakness; the respiration is more and more interrupted by sighs; the breath more fœtid, and the general weakness greater; the soporose state in which they lie, grinding their teeth, passes into complete coma; and already the last tragic scene approaches, before which the sufferers, for a short period, sometimes regain their consciousness, and are able to take food and drink without vomiting, which in this stage seldom or never happens; they even sometimes swallow with eagerness, long for their playthings, and deceive the physician and mother with momentary hopes, which too soon again vanish, while the former sufferings begin anew, and far more vehemently. A child four years old, after having for many days spoken unintelligibly through the nose, known neither his mother nor attendants, and appeared

not to see objects held up to him, called to his mother and maid distinctly by name, asked for his horse and whip, supported himself in a half-sitting posture in bed, and ate some panada with pleasure, but after three hours, he fell into his former soporose state, followed by palsy of one side, with spinal cramp and convulsions, in which, after thirty-six hours, he expired. The daughter of a professor, five years old, who, in the progress of the third stage, recovered so that she appeared in all respects well, after having passed through the previous stage of turgescence, inflammation, and effusion for two days, recovered her full consciousness, regained her sight and speech, swallowed food and drink; her pulse became equal, not intermitting, her skin transpirable, the urine was passed in large quantities, the stools were figured, sleep good, breathing without a sigh, without smell, uniform and natural; all the secretions and excretions were as in a natural healthy state, only the little patient felt great languor, could with difficulty move her hands and feet, and

was unable to hold her head up. This was the case which for some time made me distrust my prognosis, viz. that in the stage of effusion and palsy, the recovery of the patient is utterly impossible; but a relapse after forty-eight hours, followed speedily by death, corroborated too firmly my unfavourable prognostic.

THE FOURTH STAGE, OR PERIOD OF PALSY.

The above-described state, so painful to the mother, so suffering to the child, which lasts ten, fourteen, fifteen, twenty-one, seldom thirty days, is at length accompanied by symptoms more frightful than those hitherto seen. Convulsions, followed always by palsy, most commonly of the right side, and often by cramp, which draws the head backwards and downwards, and terminate only with death, distort the features and limbs in a frightful way; a violent fever follows, the last exertion of Nature, by which she makes a vain effort

to remove the cause of death, the fluid from the brain; a death-sweat trickles from the head; a hectic redness alternates with a deadly paleness on the disfigured countenance of the patient. The sight is gone; the pupil of the convulsed eye is in the highest degree dilated; sometimes, though seldom, it is spasmodically contracted, but always immoveable, and insensible to the strongest light; the albuginea is blood-shot; the tarsus covered with mucus; from the palsied eye-lid drops a substance, which appears to ooze from its inner surface, and the eye itself advances more out of its socket.

The hearing, hitherto so quick, becomes gradually dull. Swallowing is very much impeded, partly from palsy of the muscles of the throat, partly from the spinal cramp, which draws the head downward and backward; at length it becomes impossible; yet have the sufferers, even in this stage, often moments in which they can swallow fluid. At every drop, which in this palsied state they attempt to take,

their unpalsied hand trembles; their urine they pass unconsciously, little, and seldom; it is, as in the former period, deep-yellow, with a white sediment. Still rarer are the evacuations by stool, sometimes green, sometimes dark-brown, sometimes soft, firm, slimy, but never fœtid. The tough mucus falls through the posterior nares into the throat, irritating with a sense of suffocation to vomiting, but without effect; from one or other nostril flow often, shortly before dissolution, a few drops of blood.

In many, the tips of the fingers, and the other projecting parts of the hand, become blood-red, and afterwards, on the approach of death, pale; the pulse, as Whytt, Odier, Berkin, Schmalz, Baader, and others with me have remarked, becomes in the highest degree quick, and still more intermitting and irregular than in the former stage, weaker and almost imperceptible; the breath is short, quick, and gradually becomes cold; the feet are somewhat swelled; the natural warmth of the limbs already lessens and ceases altogether, whilst in the

head it is observed to be increased; the spasms which draw the head backward, and the unpalsied arm straight against the side of the body, cease only with life; the heart still makes some tremulous movements; the patient still breathes rattling with open mouth, under frightful distortions of the countenance; and thus, after nameless sufferings, from thirteen to four-and-twenty days, the little sufferers, wasted to a skeleton, expire.

DIAGNOSIS OF ACUTE HYDROCEPHALUS.

This diagnosis is a difficult thing, even to the most experienced physicians, partly because this destructive disease has much in common with many others, partly because its symptoms may be veiled under a previously existing disease. The practitioner, who holds the life and health of a child intrusted to him sacred, should look on every little sign of illness, as peevishness, want of appetite, hanging of the head, and such like, with a suspicious eye, particularly at the period of dentition, but still more particularly in families with a disposition to the disease. He should always keep in view the great frequency of the disease, and avoid the unpardonable fault which, in our days, as well as in Whytt's time, the greatest practical physicians have committed, an oversight of its early signs. He should direct his full attention to the succession of symptoms, and neither write his

recipe, nor make his prognosis, without satisfying himself about all the present symptoms, and making a careful summary of all the circumstances of the case.

Every thing which has passed from the beginning of the attack to the time when the physician first sees the patient, he must carefully search for, either from the patient's self, or, in smaller children, from the attendants, persuading the latter, by all that they hold sacred, to speak the whole truth, sounding them skilfully, and by promises of secrecy, or by threats, inducing them to be open, and hide nothing which can contribute to an accurate knowledge of the disease.

However unpleasant repetitions may be, and however liable to fatigue the attention of the reader, I consider it necessary to assist him in gaining a clear knowledge of the acute hydrocephalus.

Out of the signs of this disease, in all its

stages, I will select those especially which I have observed to be the most constant accompaniments of this disease.

Among the most important which mark the hydrocephalic turgescence are — giddiness; a momentary confusion from quick movement of the head; rheumatic pains in the hands and feet, and particularly in the nape of the neck; disturbed, unrefreshing sleep, accompanied by talking or mumbling; diminished relish for food and drink, with or without gastric symptoms; a scanty evacuation by urine and stool; a disappearance of the natural bloom without any known cause; momentary changes in the colour of the complexion; heaviness of head; a stumbling gait, without equilibrium and firmness; indifference to those things which the patient formerly loved heartily; peevishness; dislike of light and notice; a natural pulse, only with a few pulsations weaker, or omitted; fits of musing; sighing; dry skin; a general loss of strength, and a changed appearance of the patient.

From the presence of most, or all of these signs, together with a careful consideration of the causes, predisposing and exciting, the age and bodily constitution, the physician may with certainty decide on the presence of the hydrocephalic turgescence.

In the stage of inflammation, the remarkable symptoms are a distressing pain in the forehead, pressing on the eyes and continuing during sleep, which often alternates with pains in the belly and stomach, without any febrile disturbance; but in a few cases there is a vehement attack of fever, with convulsions, preceded for a brief period by some symptoms of turgescence, anxiety, and restlessness; retreating of the eye backward into its socket, with morbid sensibility of the same; in sleep, it is only half-covered with contracted pupil: likewise increased warmth of head, an altered countenance, a pale look, dry nose, hard, cracked lips; a perfect absence of appetite and thirst; repeated vomiting, always increased by moving the patient; a peculiar foul smell in what is rejected; an entire cessation of digestion;

frequent sighing, and a peculiar fœtor of the breath; a constant dull pain in the site of the stomach and liver; a great falling-in of the belly, even when the same was previously tumid; general and rapid emaciation; obstinate constipation; scanty urine, turbid, with a white heavy sediment; acute hearing; sleep disturbed, accompanied by grinding the teeth, but seldom disturbed by frightful dreams; the warmth of the head and stomach, compared with that of the rest of the body, is increased; the debility greater; the pulse slow, intermitting, irregular, with weak intervening strokes; the skin flaccid. Here begins the appearance of the eruption which Formey describes, the automatic motion of the hand towards the head, and the entire change of countenance, of speech, and of general appearance. These symptoms indicate the inflammatory stage of the disease.

The chief signs which indicate the stage of effusion are: a transition from the highest degree of sensibility to dullness of sense; inability to sit up in bed without help; an

oblique situation in bed; automatic movements with one hand towards the head; stamping against the bed-clothes with one or both feet; the leg bent and upright with rocking, and then outstretching of the same; boring with the fingers into the ears, mouth, and nostrils; indistinct speech through the nose; trembling of the hand on every motion towards the head, ears, mouth, nose. We further remark cracked lips and tongue; dullness of the other senses, but quickness of hearing; a downward look, double vision, deception of sight, convulsive opening and shutting of the eyes for some seconds.

Flushing of the countenance; a gloomy earnestness and a threatening mien during this convulsive play of the eyes; emaciation in the highest degree; a wrinkled, dry skin, clear, gold-yellow, scanty urine, with the characteristic deposit, passed unconsciously; obstinate constipation; a weak, soft pulse, but as irregular as in the former stage; a respiration interrupted by frequent sighs; a still more fœtid breath; frequent

loud groaning; continued grinding of the teeth; a state of the greatest weakness, — indicate this period of the disease.

After four, five, six, sometimes seven days of these combined symptoms, there returns in some patients a short recovery of mind: they see, speak, long for, and take food, wish for their play-things, recognize their favourites and playfellows, are able to call them by name, and are entertained with the same: but the physician and parents are deceived with vain hopes; too quickly they relapse into their former state, and there soon follow the last frightful symptoms of the fourth stage of this disease.

In this fourth period, there come on general convulsions, spinal spasms, palsy on one side, vehement fever, and death-sweats; the cheeks are painted with a hectic redness; likewise perfect blindness, palsy of the iris, or spasmodic contraction of the pupil, and bloodshot albuginea, complete deafness, difficult deglutition, a trembling movement of the unpalsied hand, diminished warmth

of the palsied side, suffocation, and efforts to vomit, without effect, express the presence of this stage. Besides these symptoms, a few drops of blood issue from the nose; there occurs also redness of the tips of the fingers, a pulse in the highest degree quick, weak, intermitting, but which often, at the beginning of this stage, is for some time slow, and intermitting, short respiration, fœtid, cold breath, coldness of the hands and feet during increased warmth of the head, at length a relaxation of the spiral cramp, a trembling movement of the heart, a stoppage of circulation, and the last rattling breath.

After this repetition of the principal signs of the disease, I think that a comparison of it with all the resembling diseases will be the surest way to lead to an accurate diagnosis. If there are appearances, which, as Baader truly says, cannot be painted with words, and yet ought not to escape the notice of the practical physician, because they often lead to a knowledge of the disease far more surely than those symp-

toms which can be indicated by words, though I may not be able to make these shadows visible on paper, yet I will endeavour to explain every thing which may contribute to a knowledge of this frightful disease. The diseases which have a similarity with hydrocephalus, and which, as Warren has formerly apprehended, are easily mistaken for it, are the worm-fever, typhus, the masked intermittent, and the chronic hydrocephalus.

DIFFERENCE BETWEEN THE ACUTE HYDROCEPHALUS AND THE FEBRILE DISORDERS PRODUCED BY WORMS.

1. The acute hydrocephalus has four stages, distinguished by a change of symptoms, seldom lasts less than thirteen, or more than one-and-twenty days, and if not cured at the beginning, always terminates in death. The worm-fever has no distinct stages, no regular change of symptoms, seldom terminates before the one-and-twen-

tieth, often not till the thirtieth or fortieth day, and is often cured at every period of the disease.

2. The acute hydrocephalus attacks strong, healthy children oftener than weak ones, and boys oftener than girls. The worm-fever attacks phlegmatic, over-fed, large-bellied, bad-complexioned children, and according to my experience, girls as often as boys.

3. The acute hydrocephalus has no distinct remissions, and is never epidemic. The worm-fever commonly has remissions, and, though seldom, is sometimes epidemic.

4. In the acute hydrocephalus there is, even in the beginning, a striking change of countenance and actions. In worm-fever the face is pale, and commonly swollen throughout the whole disease, and the conduct betrays sluggishness.

5. In the second stage of the acute hydrocephalus, there is violent pain in the forehead, continuing during sleep, alternat-

ing with pains of the belly and stomach; likewise a sense of tension in the nape of the neck, hands, and feet. In the worm-fever there are pains in the head and belly, but they are dull, not much complained of, and not distinct in their seat.

6. In the turgescence of the acute hydrocephalus the patients lose their appetite and thirst, go seldom to stool, and pass a urine at first scanty and milk-white, which afterwards becomes yellow, and deposits a white, heavy sediment. In worm-fever they eat greedily, drink thirstily, often pass large stools spontaneously, and often a great quantity of colourless urine.

7. In the acute hydrocephalus the patients never sleep quietly, soundly, and refreshingly; they wake out of their sleep, which resembles a confused slumber, very easily, and feel after it weaker than they were before; they moan and whine in it only slightly, and if they sometimes cry out loud, it is with a tone expressing pain, and sighing they turn from side to side. In

worm-fever the sleep is always sound; we can scarcely wake the little patients; during sleep, they sometimes cry out vehemently, and not unfrequently jump completely out of bed.

8. In the acute hydrocephalus the pulse is not quick till the fourth stage. In the first it is almost natural; in the second and third preternaturally slow. In the worm-fever it is quick throughout the whole of the disease, and seldom or never below the quickness natural to the patient's age.

9. In the acute hydrocephalus the skin remains dry till the end of the stage of effusion. In worm-fever patients perspire after eating and drinking, and on every exacerbation of fever.

10. In the acute hydrocephalus the patients often fall into deep musing fits, out of which they wake with a sigh. In worm-fever, dullness, tedium, stupidity, are painted on their countenance.

11. In the acute hydrocephalus, in the stage of turgescence, the patient's step is without steadiness, weak, uplifted as if going up a step. In the worm-fever the walk is slow, but neither weak, nor unsteady, nor uplifted.

12. In the acute hydrocephalus the patients in the inflammatory period are continually changing their posture in bed: in the moment of effusion they lie for a long time on one side, the lower hand under the head, the upper in automatic motion near the head. In the worm-fever the patients lie still in bed, often cry out with fear, or spring out of bed in their sleep, or sometimes wake out of sleep, in which they lie across the bed, or with the head where the feet should be.

13. In the acute hydrocephalus the sight is over-sensible in the inflammatory period, dim in the stage of effusion, and blind in that of palsy. In the worm-fever the patients never complain of strong light, nor are they perfectly blind at the approach of death.

14. In the acute hydrocephalus the hearing is preternaturally quick till the last stage of the disease. In the worm-fever they are slow of hearing, particularly towards the *end of* the disease.

15. In the acute hydrocephalus the nasal mucus is diminished in the stage of turgescence, and entirely stopped in the following stages, the patients gradually losing their smell: there is no violent itching of the nose. In the worm-fever the inner surface of the nose is moist, the smell acute, and there is always an intolerable itching of the nose.

16. In the acute hydrocephalus the vomiting which indicates the second stage occurs in every case. In the worm-fever it is an accidental symptom, which is remarked only when worms have made their way into the stomach.

17. In the acute hydrocephalus, what is rejected from the stomach has a peculiar foul smell. In the worm-fever it has not.

18. In the acute hydrocephalus the respiration is natural in the second and third stages. In the whole progress of the worm-fever it is accelerated during the febrile exacerbations.

19. In the acute hydrocephalus the bowels are constipated, particularly in the three last stages. In the worm-fever, a ready action of the bowels, even diarrhœa, from slight laxatives, are common appearances.

20. In the acute hydrocephalus the urine is very scanty, and passed in the two last stages unconsciously; in appearance, it is natural in the stage of turgescence: in the inflammatory stage, white and turbid, with or without white sediment: in the two last stages it is of a high yellow, with a white, slimy, heavy sediment. In the worm-fever, the urine is sometimes turbid, whey-like, and in small quantity; sometimes as clear as water, and in large quantity; its dirty white sediment is not so heavy as that in hydrocephalus; the first is passed with difficulty, the last without, but commonly not insensibly, in bed.

21. In the acute hydrocephalus the head feels warmer than the regions of the stomach and liver, and these again warmer than the other parts of the body: in the paralytic stage the unpalsied side is warmer than the palsied. In the worm-fever most commonly the belly only is hotter than the other parts of the body.

22. In the acute hydrocephalus the plumpest children waste rapidly; their belly, if it had been large, falls in in a few days, without proportionate evacuations; the sound of flatulence is seldom or never heard. In the worm-fever there is no wasting of the body; the belly does not shrink; flatus rumbles in the bowels, and passes audibly.

23. In the acute hydrocephalus palsy of one side, or of some part, often with cramp of the spine and general convulsions occur in the fourth stage, terminating in a few days with death. In worm-fever convulsions may occur without palsy of any part, at any period of the disease: if any palsy is remarked, it is transient.

24. In the acute hydrocephalus towards the approach of death, hectic redness of the cheek alternates with deadly paleness, and the tips of the fingers are red: these appearances are never observed on the approach of death in worm-fever.

25. In the acute hydrocephalus towards the latter end, there is a peculiar eruption about the mouth, and on many parts of the body: this characteristic eruption is entirely absent in worm-fever; frequently there appears instead a miliary eruption, the common accompaniments of gastric diseases.

26. In the acute hydrocephalus the countenance expresses inward suffering. In the worm-fever the countenance is without any expression.

DIFFERENCE BETWEEN THE ACUTE HYDROCEPHALUS AND TYPHUS.

1. Loss of bloom, without any known cause; sudden changes of complexion while the body is at rest; sudden confusion and vertigo on moving the head quickly; stumbling gait without equilibrium; rheumatic pains in the hands and feet, particularly in the nape of the neck; light, disturbed, unrefreshing sleep, accompanied by talking or mumbling; diminished inclination for food and drink, with or without gastric symptoms; a more scanty evacuation by stool and urine than in health; indifference to every thing which the patient formerly loved; fits of musing; involuntary sighing; increased sensibility to light; dryness of the skin; altered look — are the appearances which indicate the turgescence of acute hydrocephalus.

The forerunners of typhus, which precede the disease much longer than those of tur-

gescence do the acute hydrocepalus, are, fulness of the vessels of the head, preternatural heat of the forehead, with a dull pain in the same, which is lessened by cool air and evacuation by stool; fullness of the stomach before eating and drinking; momentary perspiration, particulary in the night; often increased evacuation by stool and urine; chilliness; a sense of cold running down the back, without fever; a natural pulse, without any of the pulsations, weak or intermitted; great feebleness of body; a leaden weight of the hands and feet; dullness of the senses; an absence of thought; slowness of speech.

2. The acute hydrocephalus begins after a shorter (in the tumultuous attack after a very short) turgescence, and only in the last case with a vehement attack of fever; most frequently it passes unnoticed from the stage of turgescence to that of inflammation. The above-mentioned accession with violent fever, is always accompanied by general convulsions, commonly ends in from twelve to four-and-twenty hours, after

which, the inflammatory period often continues two or three days: (see case, No. 16.) but often all the signs of effusion soon supervene.

Typhus begins after the above-mentioned precursors have been observed a long time, always with great violence; there is a long alternation of heat and cold, till at last the heat becomes permanent, with or without remissions, and never leaves the patient till the termination of the disease.

3. In the acute hydrocephalus, the pulse, in the second and third stages, is slower than in health, unequal and intermitting; it is not till the fourth that it becomes febrile.

In typhus, from the begining to the end of the disease, the pulse is feverish: should the pulsations be unequal, or like those of the second and third stage of the acute hydrocephalus, this circumstance would indicate a local affection of the head, or in rare cases, the presence of worms.

4. In the acute hydrocephalus, when the patients complain of pain, they always refer it to its seat; they often wake frightened, but without delirium.

In typhus, the patients are mostly delirious, and the delirium increases with the increasing weakness of the pulse; they never complain of any distinct pain.

5. The acute hydrocephalus has distinct periods, each of which is so distinguished by striking symptoms from the others, as if they were different forms of disease. In typhus, there is a succession of symptoms according to the period of the fever; but such a striking change in the form of the disease only sometimes occurs in the transition from the stage of inflammation into the nervous stage.

6. In the acute hydrocephalus, at the beginning of the disease, the eye is more sensible to strong light; still more sensible in the second stage, when even a dim light is often intolerable. In the third stage

they see objects feebly, often double, or in some other direction than where they are. In the fourth there occurs total blindness; the pupil, whether enlarged, or spasmodically contracted, is immoveable to the strongest light; the fixed look of the eyes is mostly directed downwards and squinting.

In typhus, when accompanied by a simple synocha, the patients complain during the inflammatory period, of great sensibility of the eyes, but there is no double vision, no false representation of the direction in which the object is to be found, no perfect blindness; the pupil of the eye is mostly hidden under the upper eyelid; the look (it is true) is squinting, but directed to no point.

7. In the acute hydrocephalus, the hearing is acute until the stage of palsy, and often raised to the highest degree of sensibility. In some patients it has its natural acuteness, even just before death.

In typhus, the sense of hearing, even on

the first accession of fever, is somewhat dull, and in the progress of the disease, deafness not uncommonly occurs. It is only when typhus is accompanied by a simple synocha, that the sensibility of this organ is morbidly acute.

8. In the acute hydrocephalus the patients can put out their tongue without its trembling, often even in the stage of palsy. In typhus the patients often are unable to put out their tongue, and if they do, it trembles unceasingly during this act.

9. In the acute hydrocephalus the gums and the teeth are without fur; even when foul the tongue is moist, the gum never swelled, discoloured, nor bleeding. In the progress of typhus the gums and teeth are covered with a black brown, gluey, tough matter, which, as often as it is removed, is formed again. The foul tongue is dry and rough, and the gums bleed on being slightly touched.

10. In the acute hydrocephalus the

breath of the patient has its own specific bad smell. In typhus the breath is in the beginning of the disease entirely inodorous; in its progress it becomes offensive, and in the most typhoid state is often cadaverous.

11. In the acute hydrocephalus the respiration is interrupted by deep sighs: in the first stage seldom; in the second oftener; in the third very often; and in the fourth the patients breathe quicker than in the former stages. The act of breathing becomes gradually shorter; for some seconds wholly imperceptible, and then with a deep groan begins again anew. In this way is respiration performed in the fourth stage of the disease, till the last expiration; and never is the respiration abdominal. In typhus the patients are little accustomed to sigh; the breathing is difficult, rattling, and performed with the belly.

12. In the acute hydrocephalus the stools, notwithstanding the use of purgative medicines, are scanty, or none at all; only from

strong purgatives, or calomel in large doses, do they appear thin, green, brown, yet not particularly fœtid.

In typhus the patients are seldom or never subject to constipation; they have often loose stools without purgatives, sometimes mixed with blood; black with worms; always very fœtid; and (it may be) passing at any stage of the disease almost unconsciously.

13. In the acute hydrocephalus the urine is turbid in the second stage, with or without a white sediment; in the third and fourth clear and golden, with a white heavy sediment; it is passed with some uneasiness or pain. In the two first stages they express their want in words; in the stage of effusion, by a certain moan and movement of the body; in the stage of palsy only they pass it unconsciously.

In typhus, at the beginning of the disease, the urine is as copious as, or even more so, than usual; but it is unnatural, and, in the

progress of typhus, very various in colour, consistence, and properties: sometimes it is watery, red; sometimes jaundiced; sometimes natural, with a cloud, with a brick-dust sediment, and sometimes, as in jaundice, brown or black, with a bloody sediment; most commonly it is passed unconsciously in the nervous stage.

14. In the acute hydrocephalus the patients waste rapidly, and even tumid bellies become lank. In typhus the patients lose little of their bulk; the belly never falls in in the same degree; on the contrary, it is commonly tympanitic.

15. In the acute hydrocephalus the patients make automatic movements with the hand about the head, and with one or both feet kick up the bed-clothes; trembling movements with the hands when applied to the nose, eyes or ears, are not observed till the two last stages of the disease.

Similar movements with the hands about some part of the body are seldom observed in typhus; but even in the first days of the

disease there is a trembling of the hands, and later a picking of the bed-clothes.

16. In the acute hydrocephalus there is a paleness of the countenance in the beginning of the disease; only, in the last period of the same, a hectic redness alternates with a deadly paleness. In typhus, excepting where local inflammation or synocha are present, the face is of a yellow or dirty hue; even under the latter circumstances there is no transient redness.

17. In the acute hydrocephalus, towards the end of the third, and at the beginning of the fourth stage, partial sweats break out about the head, to which soon follows, over the whole body, a general death-sweat, which has no smell. In typhus sweats break out even during the precursory symptoms, and during its progress are often very profuse; they are mostly clammy, and in fatal cases cold, smelling like foul straw.

18. In the acute hydrocephalus hæmorrhages from the nose, or other parts, seldom occur, particularly at the beginning of the

disease; only, shortly before death, a few drops of blood appear at one or other nostril. In typhus, bleedings from the nose, mouth, lungs, bowels, bladder, are symptoms as frequent as they are dangerous.

19. In the acute hydrocephalus there is no eruption except that already mentioned as noticed by Formey. An eruption of watery pustules on the forehead is accidental, and the miliary eruption appears only in complication with other diseases. In typhus the skin is not seldom sprinkled with a white or red miliary eruption, and very often spotted with petechiæ of various colours and forms; consequently some physicians consider typhus an eruptive fever.

20. In the acute hydrocephalus, nausea or fainting are remarked only after quick motion of the head. In typhus, faintings are observed in various stages of the disease after slight movement of the body, and even of perfect rest, and are not seldom accompanied with subsultus tendinum, ex-

tensions and distortions of the hands and feet.

21. In the acute hydrocephalus the patients speak through the nose; and only a pressing repeated question brings out an unwilling yes, or no. In typhus they stammer out half-words, or unintelligible ones, without nasal tones, with great indifference, in most instances deliriously.

22. In the acute hydrocephalus the patients after the inflammatory stage lie still. In typhus they will attempt by force to get out of bed; yet the typhus stupidus is an exception.

23. When the acute hydrocephalus comes on without violent symptoms, the heat of the body is natural, only the forehead and præcordia are warmer. In the tumultuous accession it is increased over the whole surface of the body for twelve or twenty-four hours, subsides in the stage of effusion to the natural heat; in the stage of palsy it is like the heat of hectic fever. In typhus

accompanied by synocha, there is in the inflammatory stage no distinguishing symptom between the two diseases; yet out of this stage the heat is vehement.

24. In the acute hydrocephalus the patients always lie, whether on the back or the side, somewhat obliquely; they never slip down to the foot of the bed. In typhus the patients lie unconscious, without any determined direction to the right or to the left, mostly on the back; every time they are raised up, they slip involuntarily down to the bed's foot.

25. In the acute hydrocephalus there are never enlarged glands under the ears, carbuncles, cadaverous, fœtid ulcers, sloughing parts on the surface of the body. In typhus some of these are very common.

DIFFERENCE BETWEEN THE ACUTE AND CHRONIC HYDROCEPHALUS.

The acute differs from the chronic hydrocephalus in the progress of the disease, and in the seat of the effused fluid, as has been mentioned above. To these may be added the difference in the external shape of the head. But in another treatise I propose to speak more fully of this form of hydrocephalus.

DIFFERENCE BETWEEN THE WATER-STROKE AND THE MASKED FATAL INTERMITTENT.

The water-stroke is, as I have already mentioned, a disease, according to experience, always fatal, without remissions or intermissions. This in a striking way distinguishes it from the masked intermittent; but the diagnosis is more difficult when the first paroxysm of this malignant fever

proves fatal, or when the paroxysms follow one another so rapidly that either there is really no cessation of fever, or because of its shortness it passes unnoticed, and the attendants can give no explanation of what has preceded it. Here dissection only can ascertain the nature of the diseases. Wichmann's excellent remarks on this subject deserve to be read with attention.

Luckily for children, the appearance of this fatal fever under the mask of the water-stroke is in the highest degree rare. For twenty years, out of 82,000 sick children, I have seen it only a few times with perfectly distinct intermissions, but *never* in that state in which *no* intermission could be remarked.

An extended comparison of the differences between these two diseases would be necessary only if the water-stroke required the active employment of calomel and blood-letting, which would be highly injurious in the masked malignant intermittent, and this mistake in the diagnosis would oc-

casion the unavoidable death of the patient. But since this treatment (as I shall afterwards explain) is fruitless in the water-stroke, and only palliatives, for the satisfaction of the attendants, are indicated, which remedies may be given in the paroxysm of the masked intermittent, no error can be incurred injurious to the life of the patient, or to the character of the physician. Every practical physician, therefore, will agree with me in giving the intermissions as a sufficient mark of distinction between the two diseases, which will be fully corroborated by observing the characteristic urine.

OF THE PREDISPOSING CAUSES.

The causes which predispose to the acute hydrocephalus are, as Odier, Fothergill, and many others have stated, — the age of childhood; extraordinary vivacity; the

weight of the brain disproportionate to the rest of the body; the great softness of the various parts of this organ; frequent congestion towards the head and the brain; the developement of the latter; the continued irritation of dentition, or of worms; Odier directs attention to the first, the great observer, Petit, to the latter of these two. Likewise belong to the predisposing causes, injuries of the head in the birth; tight swaddling, impeding the freedom of circulation; a peculiar disorder of respiration in which infants, after sudden waking out of sleep, after terror or anger, often too without any cause, are suddenly seized with a deep shrill respiration for many seconds, sometimes even for minutes, threatening suffocation; the whole body becomes as stiff as a log of wood, the face, hands, and feet, particularly the finger and toe nails, black and blue, they lose their breath and consciousness, and at length with a cry of alarm recover their breath again. Further, the chin-cough, long continued diseases of the abdomen, as

the liver, spleen, the mesenteric glands; chronic internal hydrocephalus, when the stagnant fluids in the ventricles excite irritation, by which an increased congestion towards the head is produced, which irritation becomes an exciting cause, certainly not the rarest, of the acute hydrocephalus.

When very little children, both day and night, are excessively sleepless, cry for hours long without any discoverable disease or pain, and bend themselves; have irregular bowels, which, by the most careful treatment, cannot be brought to the common pale-yellow colour, and proper consistence; and when the urine is unnaturally scanty, the physician ought to be on the watch for an affection of the head. I have often seen, in children under a year old, the acute hydrocephalus follow these circumstances. The pernicious use of anodynes which nurses procure by stealth, and cunningly manage to give to the poor children in presence of their mothers, which operate injuriously in a

double way on the viscera of the abdomen, and on the brain; long continued constipation, by which the free circulation of the blood in the abdomen is impeded, and the pressure of the circulating fluid towards the head is increased; early and frequent use of fermented liquors, and stimulating food, by which the circulation of the blood is quickened, belong to the predisposing causes. Here belong also too great confinement of children to their lessons; strong, frequent emotions of mind, as terror, anger, fear, anxiety; previous diseases imperfectly cured, as Cheyne has already acutely remarked; febrile eruptive diseases; great terror and anxiety in the mother during the last months of pregnancy: a multiplied experience of this cause was afforded to me and the other plysicians of Vienna, in the year 1809, when our imperial city was bombarded; most of the children who were born after this frightful catastrophe, in about 10, 20, or 30 days after their birth, were seized with convulsions and died; within the cranium were found traces of inflammation, and in the

ventricles of the brain effusions of lymph and of serum.

Repeated agitation of the brain in any way; previous anasarca, ascites, or hydrothorax; hectic fever, from an organic defect of some of the other viscera; general scrofula, which, according to Cheyne's and Sprengel's accurate remark, is of all others the most common cause of the acute hydrocephalus; worms, and hereditary disposition in children, likewise dispose to the acute hydrocephalus.

Girtanner doubted this hereditary disposition; but Quin, Odier, Cheyne, Formey, Peter Frank, Portenschlag (the father), Baader, Schafer, and other practical physicians assert it, with me, having met with families in which this disease very often occurred; and on the contrary, other families, under equally unfavourable circumstances, in which this disease was not produced. In children of scrofulous parents, who drink much strong drink, the physician, during the slightest catarrhal affection of the eyes,

of the nose, of the throat, of the lungs, should be always on his guard, taking care to keep up all the natural secretions, prescribing derivative and evacuating remedies at the proper time, and in the proper quantities; likewise, in the above-mentioned individuals, all gastric symptoms should be in the highest degree suspected by the practitioner; and if he thinks of giving an emetic in such cases, let him never proceed to do it. I here speak from long experience, and candidly confess that, in my earlier years I have overlooked the stage of turgescence, and of local inflammation, veiled under the symptoms of a catarrhal affection, and employed emetics too extensively.

Likewise belong to the predisposing causes of the accute hydrocephalus, epedemic fevers, which Willis, Lanzisius, and Lieutaud have observed; and slow fever, of which I and many other physicians are convinced. Lastly, all those circumstances in the glandular and lymphatic system, which prevent the superfluous lymph, or

other fluids which nature is unable to employ for the growth of the body, from being evacuated in some way or other by the surface of the skin: for example, in cutaneous eruptions the fact that, for a decennium, the achores have become rarer every year, and in the same proportion the acute hydrocephalus, and other inflammatory effusions, more frequent, is taught by daily experience.

OF THE EXCITING CAUSES.

The exciting causes are very numerous; as excessive cold to the head, particularly in new-born infants; violent agitation of the brain from falls, the jolt of a cradle, a blow, shaking by the hair of the head, jumping (and other bodily concussions); standing on the head; hanging by the feet with the head down for a long time, and other feats of rope-dancing, from which commotions of the brain, after many weeks,

the first signs of acute hydrocephalus have appeared, as I have often experienced, and Schmalz, Odier, Wichmann, Ziegler, Hufeland, Wolf, and Alix have remarked. Among many other cases, I may refer to the child of four years old, (case No. 21.) who fell from a coach-box on his head. Another, eight years old, (case No. 19.) who, in a like way, out of a window four feet high, fell on its head; and another, six years old, (case 28.) In the first after five, in the second after six weeks, the parents first remarked some ailment, which still, for some time, was left without medical aid.

Suddenly suppressed discharges from ulcers, moist eruptions on the head, discharges from within or behind the ears, &c.; the retrocession of febrile eruptions, as measles, small-pox, scarlet fever, nettle rash, erysipelas, even of cow-pock, (cases No. 7, and 8.); the suddenly suppressed discharge of a fistula recti; external inflammations of the head, face, eyes, ears, mouth; inflammations of the throat, neck, lungs, pleura, or peritonæum, abdominal viscera, particu-

larly of the liver and stomach; all kinds of quinsies; aphthæ, particularly the infectious form, in new-born children, in hospitals and foundling-houses, by which so many children are destroyed; the purulent ophthalmia of new-born children, as Odier has already accurately remarked; the use of fermented drinks and seasoned food; strong smells; cutting off the hair of the head; carelessness about the state of the skin; the metastasis of morbid materials, as that of gout; the imperfect or false crisis of acute, eruptive, and other fevers, belong to the exciting causes of the acute hydrocephalus.

To cold immediately after birth, which, in our days, either from ignorance or carelessness, so often happens, not a small number of the healthiest children, in the first days of their life, are sacrificed; the consequences often are inflammations in the abdominal viscera, but according to my experience, and that of other practical physicians, there arise far oftener internal inflammations in the head, which occasion the effusion of lymph and of serum in the cavi-

ties of the head and brain, and terminate with death, which appearances are merely called convulsions. The frequent examination of infants which have died of such convulsions has taught me, that the disease has been either the water-stroke, or the acute hydrocephalus. Likewise, in grown children, the sudden cooling of the head has sometimes produced this fearful disease, as is clear from (case No. 20.) and as Percival and other physicians have stated.

But the most important cause which occasions the acute hydrocephalus in large, perfectly healthy, lively children, who have begun to run, clamber, and jump about, and consequently often fall, is, according to my manifold experience, and according to Baader's remark, an agitation of the brain; and nearly the greater part of the sufferers whom I have had to treat for this disease, came by it in this way.

Another exciting cause of the acute hydrocephalus, which, after the foregoing, may be looked on as the most important,

is the sudden drying-up of discharges from ulcers, and moist eruptions, on various parts of the surface of the body, (case No. 18.) The febrile exanthemata, as measles, small-pox, scarlet fever, &c. when in their progress they have been disturbed by unfavourable influences or injurious irritation, especially from worms, very often produce the most vehement degree of the acute hydrocephalus, namely, the water-stroke, (cases No. 24. and 26.)

Sometimes, in chronic hydrocephalus, the fluid contained in the ventricles of the brain acquires from fermentation, or some change which we do not understand, an irritating property by which inflammation of the brain may be excited, as Nord and Treber have experienced, and I have many times observed. Sometimes, the reverse takes place, the acute hydrocephalus having been checked, but not cured, by the remedies, terminates neither in recovery nor in death, but degenerates into the chronic hydrocephalus, as is proved by the case of

Michael Schweitzer, a boy about four years old, (case 29.); and as Henke has stated.

External inflammations of the head, neck, face, violent inflammations of the eyes in new-born children, inflammations of the ears, nose, mouth, throat, all kinds of eresypelas which occasion increased turgescence in the head, or propagate inflammation to the membranes of the brain, aphthæ, particularly the contagious form, are liable to produce hydrocephalus acutus; most commonly the hyper-acute, or water-stroke, falsely called convulsions.

The experience of Dr. Eckarts, formerly the chief physician to the General Sick-house, corroborates mine. Vehement inflammations of remote parts or organs, either by impeding the circulation of the blood, occasioning determination to the head, or by the sympathy which the nerves of the remote inflamed organ have with the brain, often occasion the acute hydrocephalus, but oftener the hyper-acute, or water-stroke.

Violent vomiting, produced either by emetics or by consent of the stomach with some other suffering organ, not unfrequently occasions the acute, or the hyper-acute hydrocephalus.

The belladonna, the great efficacy of which in hooping cough I have already remarked for eighteen years, which Schafer at Regensburgh, and the physicians of Augsburgh have experienced, was often the cause of the acute hydrocephalus, when, by its incautious, or immoderate use, an inflammation of the brain was excited, from which followed effusion of serum and lymph into the ventricles of the brain. Two dissections which the late Dr. Treber and I performed, the one on a boy of three months old, the other on a girl of three years old, both of whom, during the incautious use of that remedy for chin-cough, were seized with violent fever and convulsions, and died, proved that the belladonna had occasioned the water-stroke.

From the abuse of fermented liquors,

both myself and other physicians have too often seen melancholy sacrifices to this artificial disease, particularly during that decennium in which young and inexperienced physicians, and fiery disciples of the Brunonian doctrine, employed stimulants for every thing.

When that merciless fashion reigned of shaving the heads of children, when the naked head was exposed to the rays of the sun and other injurious influences, and when shorn, warm and perspiring, it was suddenly washed with cold water, many a child was killed by the acute hydrocephalus.

The metastasis of various diseased matters is a rare cause of the acute hydrocephalus, yet for some years the false crises of diseases have frequently occurred as the cause of this disease, but more frequently of the water-stroke. Suddenly suppressed diarrhœas and dysenteries, I have often seen followed by the water-stroke; in rarer cases by the acute hydrocephalus.

TERMINATION OF THE ACUTE HYDROCEPHALUS.

The water-stroke ends, as I have already said, always fatally. The acute hydrocephalus is, for the most part, fatal, but sometimes terminates in recovery, or in some other disease, as blindness, deafness, idiocy, epilepsy, hemiplegia, followed sooner or later by atrophy; also in chronic hydrocephalus. The patients who are cured of hydrocephalus can be saved only in the stages of turgescence and inflammation. When the transition into one of the above-mentioned diseases happens, it is for the most part only in these stages; when it occurs later, it happens only under the circumstances mentioned in the prognosis. Death commonly takes place in the fourth stage of the disease, seldom earlier. Odier saw patients die in the second stage, and the cases mentioned by Cheyne and Quin, wherein patients who had died with hydrocephalic symptoms, only a trifling extra-

vasation was found, prove that those patients had died apoplectic in the beginning of effusion. Earlier than in the fourth stage of the acute hydrocephalus, I have never seen death take place, excepting in those cases in which the disease began with tumultuous symptoms.

It is very difficult, from that which authors say, to ascertain the stage in which death occurred; because, as I have already mentioned, they differ so much from one another in their arrangement of the periods of the acute hydrocephalus.

ON THE DURATION OF THE ACUTE HYDROCEPHALUS.

About the duration of this disease writers do not agree. Whytt says that it lasts a long time. Percival, Fothergill, Vanhoven, fix its duration from fourteen to one-and-twenty days. Warren agrees with Whytt.

Baader cites cases from other writers, where this disease lasted fourteen days. The great Peter Frank saw such patients die after six weeks. A girl, eleven years old, who was brought to the Institute for Sick Children, and was watched by my colleagues Dr. Letl and Dr. Adelt, died after being ill two months: the disease began gradually to arise with very slight symptoms, after the sudden healing of a scald-head. Wichmann lost an infant at the breast in eight days. Sprengel gives fourteen days, but says that some die on the sixth or eighth day. The greater part of my hydrocephalic patients, of which the number amounted to some hundreds, when they died, did so between the thirteenth and seventeenth days; none before the eighth, and only a few after the twenty-fourth or thirtieth day. Experience also teaches that the earlier or later occurrence of death depends on the greater or less irritability of the brain; on the slow or rapid collection of the effused fluids; on the degree of vehemence in the exciting causes; on the use of more or less appropriate re-

medies; and on the time and the degree in which they are employed.

ON THE ORIGIN AND FREQUENCY OF THE ACUTE HYDROCEPHALUS.

The origin of this disease is lost in the darkness of antiquity; yet, from a passage of Hippocrates de Morb. lib. vii. sectio 5. it is clear that the Father of Medicine knew the disease, and may have had about it more accurate ideas than many living practical physicians. "Aqua, si in cerebro suborta fuerit, dolor acutus sinciput et tempora interdumque alias capitis partes detinet, subindeque rigor et febris, oculorum regiones dolor occupat, iique caligant; pupilla scinditur, et ex uno duo sibi cernere homines videntur, et si quis surrexit, tenebræ ipsum prehendunt, neque ventum neque solem sustinent, aures tinniunt, salivam et pituitam vomitione refundit, quandoque etiam cibos, &c." I cannot therefore agree

with the opinion of Ackermann, Whytt, and other writers, that all the passages in the ancients, where water in the head is mentioned, only indicate the chronic hydrocephalus; for the above-cited words of this great observer express the character of this disease but too distinctly. Celsus, Œtius, Paul Ægineta, and Epiphanias, treat only of the chronic external and internal hydrocephalus. Omnibonus Ferarius speaks only of the last, and Etmuller, who seems to have forgotten those powerful words of Hippocrates, contends that Andreas Vesalius was the first who spoke of water in the ventricles of the brain. Mercurialis relates an example of an apoplexy which arose from a collection of water in the brain. Hildam, Pitschel, Monro, Antyllus, Abukasis, Trion, Leonides, Severinus, Ruish, Schenk, Schombard, Bonet, Wepfer, Haller, Sennert, Blackmor, Wisemann, Merkati, and others, found water in the chambers of the brain. Petit had accurate ideas about the acute hydrocephalus. Johnson, who wrote four years later, spoke only of the chronic hydrocephalus. The first who

rightly collected the symptoms of the acute hydrocephalus, and wrote a separate treatise on the disease, is unquestionably Robert Whytt, and after him Gaudel, Ludwig, Quin, Odier, Baader, Hopfengartner, P. Frank, the two Wenzels, Formey, Von Portenschlag (the father), Hecker, Konradi, Fleisch, Okely, Cortum, and others.

Formey said truly of this disease, "Formerly neither its seat nor its causes were known; its symptoms were ascribed to other diseases, particularly to worms and dentition;" he might have added that there are in our days, as in Whytt's time, physicians who, with Weikard, deny the existence of this disease.

That the acute hydrocephalus, since the time when more attention began to be given to the disease, has become more frequent every year, cannot with certainty be inferred; but that it, as well as croup and other inflammatory effusions, has, for the last ten years, been much more frequent than formerly, many practical physicians contend,

and my register of the Sick Children's Institute corroborates this opinion.

Many physicians are of opinion, that the cause of the present great frequency of this disease is to be sought for in the less frequent eruptions on the heads of children; they contend, that the lymphatic system has suffered a powerful revolution, since which, the achores have gradually vanished, and the diseases of effusion have become more frequent in children.

Others believe that the modern mode of rearing them in great towns, and even in the country, according to which children, in the first months of their existence, are accustomed to take spiced food, and spirituous drinks, chiefly contributes to the frequent appearance of this disease. According to my opinion, both are true; yet I lay more stress upon the former, because, in the northern countries of Europe, it is customary to give wine frequently to little children; and among the Wallachian peasants, sucklings take even brandy, without

the acute hydrocephalus occurring more frequently than among us. On the contrary, since the rarity and almost disappearance of the achores, more have been seized with the acute hydrocephalus than was the case at that time when the Brunonian doctrine influenced the rearing and treatment of children, and eruptions on the head were more frequent. Lastly, some confide in the remark of a clergyman, who considers the use of potatoes as the cause of the great frequency of scrofula, with which also he charges the acute hydrocephalus; but to certify such an opinion, further experience and accurate observation are required.

That this disease ever reigned epidemically, or in any one place was endemic, has never been remarked, except by Michaelis; not even by the English writers; and that it occurs more frequently in summer than at any other season, as Cheyne thinks, I have not observed.

THE PROGNOSIS OF THE ACUTE HYDROCEPHALUS.

The water-stroke, which is the most violent form of the acute hydrocephalus, is always fatal; the most prompt treatment comes too late; every remedy hitherto tried is unavailing. What are called metastases during the progress of some other disease to the head, are, as I have already indicated, the most common causes of the water-stroke; and what physician can boast that he has ever saved a patient in whom this metastasis has completely taken place?

The acute hydrocephalus also, when fully formed, that is, when the effusion has already taken place, yields to no remedy; every patient is beyond the reach of art. Hence I, with Parey, Kamper, Mathey, Ludwig, Schaffer, Speyer, Fothergill, Hink, Jameson, Plenk, Watson, and Whytt, describe this disease in the above-mentioned

stage as incurable, of which I must say with the great anatomists, the two Wenzels, long and manifold experience has convinced me to certainty. I have never, like Formey, seen a patient recover after effusion. Watson's and Willan's patients, who recovered without medicine, certainly did not suffer the acute hydrocephalus, at least were not in the third stage of it. Whytt's patient, who recovered under the internal use of calomel and rhubarb, and externally blisters, must have been in the stage of inflammation when those remedies were employed, or have laboured under some other disease. If, at the commencement of the effusion, the proper remedies are actively employed, it sometimes happens that further effusion is arrested, and the patient, supposed to be lost, is restored to life; but seldom with much reason for rejoicing: idiocy, deafness, or blindness, are commonly the relics which adhere to a patient just snatched from sudden death, till at length a slow fever, after months or years, carries off the sufferer.

The cases of amaurosis, which Morgagni relates from Bonetus (Morg. Ep. 13. 6.), may partly belong here: I have seen something similar in the progress of the chronic hydrocephalus. Anthony A. eight years old, son of a tailor, in whom I had arrested the effusion which had already begun, by the prompt employment of the necessary remedies, became affected with amaurosis. Elizabeth Foppey, 11 years old, daughter of a day-labourer, who had suffered from birth with chronic hydrocephalus, half-a-year before her death became stone blind. Mathias Schweitzer, in whom the chronic hydrocephalus occurred in the fourth year of his age, after an agitation of the brain, and cold, which had been preceded by scarlet fever, lost his sight from amaurosis.

The more sudden the attack, and the more violent the symptoms, so much the more rapidly the stages follow one another, and so much shorter is the duration of the disease. On the contrary, the more gradually it approaches, the more mild and

few the symptoms are, the less they are distinct, the slower is the transition out of one stage into the other, and the later does death terminate the sufferings of the patient.

The continuance of life, after effusion, without hope of recovery, to four-and-twenty, or even thirty days, is often the work of nature; whether this delay can be effected by powerful remedies I will not decide.

The cure of the acute hydrocephalus, as Boerhaave, Van Swieten, Unger, Junker, and others, agree with me in stating, is only then possible, when the physician is called during the stage of turgescence, or at the beginning of that of inflammation. When, therefore, Von Portenschlag (the father) cured some of his many patients; Odier, four out of six; Percival and Whytt, one; Cheyne, three; and Macker, Mosely, Aerey, Mier, Dobson, Quin, and others, cured many patients of this disease; this certainly happened only during these stages of the disease.

The one-and-forty which were saved by me were in this state, and for this cause are put down in the Register under inflammation of the brain.

When the acute hydrocephalus comes on after a short turgescence, with violent fever and convulsions, and, to relieve the latter, antispasmodics and stimulants are employed, as is often the case, not only the disease is not cured, which it might have been by proper remedies, but the patients are consigned to a sudden and sure death. If from the presence of gastric symptoms, an emetic is employed, it favours the developement of the disease, and hastens death; hence I do not approve of Aerey's and Schaffer's mode of treatment, think Warren's advice not good, and look on Weaver's determination to begin with an emetic when the patient is affected with vomiting and convulsions, not worthy of imitation. The girl of nine years old, whom Mathie attended, and a boy of two years, to whom, for gastric symptoms, a physician of Vienna gave a vomit, had to thank their medical

attendants for their speedy dissolution. Baader censures the use of emetics.

If, in the stage of turgescence, or inflammation, by the use of antiphlogistic remedies, as calomel, and external and internal evacuants and counter-irritants, the hydrocephalic symptoms are entirely removed, and do not return for two or three days, during a perseverance in the remedies, there is hope of recovery; but, if during the above-mentioned days, there is a recurrence of irregular pulse, pain in the head, and vomiting, then, between the thirteenth and seventeenth days, seldom later, death unavoidably follows.

When the acute hydrocephalus supervenes upon the chronic, from the effused fluid within the brain having acquired irritating properties, little good can be expected from our best remedies, even in the stage of turgescence and inflammation; even though they may not have been overlooked, the effusion goes on in spite of the best remedies used at the properest

time. The same is the case when the disease supervenes on scrofulous or other forms of tabes, when I, as well as Cheyne, have remarked, that this disease always terminates fatally.

The complications of hydrocephalus with febrile eruptions, as measles, scarlet fever, small pox, or with worm, or nervous fever, are, as long experience has taught me, always fatal; because the most acute and attentive physician is often not able to distinguish the hydrocephalic symptoms from those of the disease with which it is complicated; or if he should, and is called even at that moment of the disease, when otherwise a radical cure would be possible, the means necessary for the acute hydrocephalus would render the other disease fatal; for example, large doses of calomel, large detractions of blood, in its complications with worm, or nervous fever: I have seen all these complications terminate fatally.

When digitalis has been employed in the palliative cure, the patient dies an

easier death than if the digitalis has been omitted, and in the stage of effusion and palsy, powerful stimulants have been employed.

When in the progress of the second stage, after the necessary blood-lettings and remedies, a general steaming perspiration breaks out during quiet sleep, and continues several hours, it is a good omen; it arrests the effusion of lymph and of serum in the cavities of the cranium and brain. Von Portenschlag (the father), Edward Mier, John Evan, Percival, and other observers, corroborate, by their experience, the accuracy of this result. Both partial and general sweats, in the stage of palsy, are the near forerunners of death.

The earlier the disease is detected, and the more promptly the proper remedies are judiciously applied, the greater is the hope of saving the patient. What Fischer says is, and will always be true; "If this disease, fatal in most cases, is now and then subdued by art, it is only when it is

detected in the first moments of its origin." Quin is convinced that it is only in the first moments of the disease that a cure is possible; Cheyne says, when the disease is discovered early, it is a dangerous, not an incurable disease; Thomson says, that in the acute hydrocephalus he has seen none recover; he considers a want of accurate diagnosis, and the late application of remedies, as the causes of its great mortality; Aerey, of his many patients in the acute hydrocephalus, saw only one recover.

Even when the treatment is conducted in the most perfect way, and attended by the most striking amendment, the physician is never sure of the recovery of his patient. I have often seen the distressing head-ache, the violent vomiting, the sensibility of the eyes, and the other symptoms vanish; the slow intermitting pulse become natural; the disturbed vital functions fall into order; the wish to eat and drink return; but scarcely have 24 or 48 hours passed, before all the worst symptoms recurred, and death ensued. I well remember Elizabeth Kon-

stantinowich, about eight years old, a healthy child of rare beauty, who was seen also by the great Peter Frank, and the celebrated physician, Klosset; another, six years old, which I attended with Dr. Wierer; and Joseph Markel, whom I attended with Dr. Smetena. In these and many others, the worst symptoms yielded rapidly to the remedies; but after a few hours they returned, and the patients died.

ON THE TREATMENT OF THE ACUTE HYDROCEPHALUS.

The number of remedies which have been employed by physicians is very great, and have been all given with one and the same object. Since the time when the essence and form of this disease has been accurately known, and its treatment rightly understood, the following are the external and internal remedies to which experience has given the preference — emollients and

antiphlogistics; calomel; the digitalis purpurea; likewise others which, without stimulating much, promote the evacuations by urine and stool, and produce and keep up an increased perspiration, as the althæa, the ononis, the præparata sambucina, and such like; all which keep open the emunctories. Externally, general and local blood-lettings by venesection, leeches and cupping glasses; likewise, cold stimulating applications, as cold water, with or without ice, and the addition of vinegar and salt, mustard sinapisms, drawing plasters, stimulating glysters, frictions with tartar emetic, Spanish fly tincture; foot baths, with salt and mustard; baths for the whole body.

In the writings of authors who have written particular treatises on the acute hydrocephalus, or in other works have made mention of this disease, I sought industriously, but in vain, for an accurate and precise statement when, where, and under what relations and circumstances this or that of the many remedies which they celebrated, ought to be employed;

To supply this want as much as possible, to point out for each remedy its proper place, and to determine the degree in which it was efficacious, I have subjected the results of my long and numerous experience to a careful examination, and scrupulously written down what in each case, and at what period I have found efficacious and trustworthy.

As, following nature, I have divided the progress of the acute hydrocephalus into four stages, so the treatment must be considered, as it regards the stage of turgescence, of inflammation, of effusion, and of palsy. The treatment also divides itself into the radical and the palliative. The time and circumstances under which the first is possible, or when the last alone can be attempted, will be clear from what follows, viz, that a perfect cure is practicable only in the two first stages of the disease. In the stage of effusion and of palsy, there remains for the unhappy patients only a palliative mode of treatment.

TREATMENT OF THE TURGESCENCE OF THE ACUTE HYDROCEPHALUS.

Above all things it is necessary accurately to take into account all the circumstances of the case, and to discover the exciting causes of the disease, because thereon depend the right indication, and the suitable selection of remedies.

Thus it is very important to know whether any eruptions have been repelled; old ulcers suddenly healed; habitual discharges from the ears and other parts have been suddenly stopped; whether the liver is diseased, or the mesenteric glands; whether narcotics, or intoxicating spirits have been taken; perspiration has been suddenly suppressed; the brain has suffered any mechanical agitation. Each of these must be accurately considered; the plan of treatment must be directed, not only generally against the disease, but specially according to the exciting cause, and the constitution of the patient.

If the physician is called at the commencement, or even during the progress of turgescence, (how rare!) and if he has, by accurate enquiry, happily detected the enemy with whom he has to strive, under its many and various deceitful and apparently insignificant appearances, he must go quickly to work, and not, waiting for more symptoms, lose the favourable moment in which he can extinguish the disease in its commencement, by a blameable hesitation, and inactive looking on.

If he finds in his patient the symptoms mentioned, as those of turgescence, has considered the exciting causes and the peculiar constitution of his patient, and according thereto determined his plan of treatment, the remedies must be immediately prepared, the patient placed in a roomy chamber, screened from strong day-light, in a bed which resembles a slightly inclined plane, and the chosen remedies immediately applied.

From this situation, the patient must, when necessary, be very slowly raised, and

gently laid down again, because all quick, rough movements occasion giddiness, and increase the already present, but yet tolerable uneasiness of the head, by that means, contributing to a more rapid developement of the inflammation, particularly when the disease originated in a mechanical agitation of the brain.

The temperature of the room must be rather cool than warm; a higher degree of heat is very sensible to the patients, increases their sufferings, and does no good. The patients should be placed with the head somewhat higher than the feet; the bed clothes so light, as not to force perspiration; the head must, for the application of local remedies, remain uncovered. The persons who take care of the patients during health, must give themselves up to watching and taking care of them now. Every thing which can irritate and teaze them, and make them cry, must be carefully avoided: even giving medicine by force must not be allowed. We must humour the temper of the patients, and by soothing and promises, bring them to swallow

the medicines willingly. These precautions being taken, and the attendants instructed in their duties, we begin immediately to apply the internal and external remedies.

The means which are to be employed during the turgescence, to prevent the breaking out of the local inflammation, are calomel, emollients, antiphlogistics, internal and external evacuants, and counter-irritants.

Of all the medicines which have been highly praised for the acute hydrocephalus, calomel is the most efficacious; in the turgescence, and at the beginning of the inflammatory stage, I may almost call it a specific: it excites, as it were, an abdominal or intestinal ptyalism, loosens the coagulating power of the lymph, and lessens, by the action which it excites in the alimentary canal, the orgasm in the head; awakes more activity in the ends of the serous vessels, by which absorption is increased, and, according to my experience, makes all other purgatives, for the most part,

needless, and only in cases of very diminished irritabilty in the alimentary canal, or in very great collections in the same, is an addition of jalap necessary.

The English physicians were the first who recommended the use of quicksilver in all forms of dropsy. Dobson employed it in dropsy of the head, and affirms, that he has cured seven, and given relief to one. Percival also employed it. Orey saw a boy of two years old with a dropsy of the head, to whom he gave, during two months, two-and-forty grains of calomel internally, and three ounces of mercurial ointment rubbed in externally. Odier cured many patients with water in the head by these means, with scarcely any other medicine. Mosely, Mier, Quin, and others, relieved with quicksilver, many children of two and three years old from this disease. Perkins's and Warren's patients recovered under the use of the same remedy.

That all these celebrated physicians, and with them, Armstrong and John Hunter,

gave quicksilver in very large doses, we see from their works, and that they observed good effects from the same there can be no doubt: but they, and many physicians after them, give no distinct statement in what dropsy of the head, whether the acute or the chronic, or in both, they found the quicksilver efficacious. Even in the later writers as Weaver, Girtanner, Hopfengartner, Cheyne, Formey, Portenschlag, and others, who clearly distinguished the acute from the chronic hydrocephalus, we miss the statement of the moment in which the quicksilver is to be given in either form of the disease.

Under what circumstances a greater or smaller dose of this divine remedy is to be given; when its use should be begun; how long continued; to what quantity we may venture, and when we ought to stop, I have learnt from many years' observation.

The greater or smaller dose, the longer or shorter use of the quicksilver depend not on the age of the patient,

but on the peculiar constitution, and the more or less elevated irritability of the alimentary canal. Children of one year and under, bear, in general, a far larger dose, (for example, eight or ten grains of calomel in the twenty-four hours,) without producing diarrhœa, colic pains, swelling of the salivary glands, than children of four, five, six, or eight years, who will scarcely take three or four grains before they begin to complain of pains in the belly. I have never seen the use of calomel produce salivation within a few days, as Wilmer and Perkins have; and a London physician, who has written in the London Medical Journal for 1781: with Mier and Graham, I have seldom seen this appearance at all, and then only late, after long perseverance in large doses.

In little children of from one to four or five months, a quarter of a grain; in larger, of from six months to one or two years, half a grain of calomel given internally every second hour, will be sufficient, until it has produced green slimy stools four or

six times, but not purging stools, against which Percival has already warned us, or until there occur sharp pains in the belly, which infants express by drawing up their legs and whining, but larger children describe with words. In habitually constipated children, about which the physicians must not forget to ask, it is often necessary to give the dose of calomel every hour ; and in a high degree of insensibility of the alimentary canal, a few grains of roasted jalap must be mixed with the quicksilver, in order to produce the wished-for effect. Quin mixed jalap with calomel in the proportion of two grains of the former to one of the latter. Baader, who says he did not require this addition, appears to have had to treat no very constipated children.

The reason why I prefer *toasted* jalap to raw is, that the raw, in connection with calomel, often excites vomiting, which is carefully to be avoided ; also the roasted does not so readily excite colic pains as the raw. If the stools are succeeded by sharp colic pains, it is necessary to desist

from the calomel until the pains have ceased, or the diarrhœa, if that has been excited, subsides, and then to re-employ the calomel at longer intervals of time, as three or four hours, in half-grain doses, until the above effects, purging and colic, follow. In this way, I persevere in the use of this remedy as long as the symptoms require, that is, as long as any of the important symptoms which I have described in the diagnosis of turgescence can be detected in the patients.

Externally the calomel has been used by English and other physicians in various vehicles to the head, trachea, neck, spine, gums, and other parts of the body. Others prefer the mercurial ointment; but the effect of mercury externally applied is much too slow, and the patient who is trusted to its mere external use would, by the progress of the disease being more rapid than the action of the remedy, be soon placed in a hopeless state.

Many authors, Whytt, Odier, Quin,

Wilmer, Leib, and others, gave calomel internally in far larger doses; as two, three, and more grains at a time; and continued its use many days in the same dose, without considering the many evacuations from the alimentary canal, or the violent colic pains; and they affirm, that they have never remarked, from the effect of this agent given in these large doses, any bad consequences in the abdomen. Melancholy experience compels me to contradict them. Many times I saw, under those large and long-continued doses of calomel, the hydrocephalic symptoms suddenly vanish, and inflammation of the intestines arise which terminated in death. Still oftener I observed this unfavourable accident, from an incautious use of calomel in croup; viz. where all the frightful symptoms of this tracheal inflammation which threatened suffocation, suddenly vanish, and entiritis develope itself, which passed rapidly into gangrene, and destroyed the patients.

The question, how long the calomel in

the acute hydrocephalus in the above-described way is to be used; whether it is to be continued only in the first two stages, or likewise in the stage of effusion and palsy, will be obvious from this; that the remedy produces good effects only in those stages of the disease where a radical cure is possible; but in those stages, where every other remedy is fruitless, it is superfluous; for the turgescence and the inflammation it is efficacious; but for the two last periods, it is useless.

If this highly-praised remedy does not always produce the wished-for effect, the bad preparation of the medicine is not unfrequently the cause; the only contra-indications which can forbid the use of the calomel, are violent pains in the abdomen, an inflammatory state of the stomach and intestines, and weakening diarrhœa: but as, in the many hundred patients whom I have attended for the acute hydrocephalus, I have never seen inflammation of the belly, violent pains, or diarrhœa, but instead of the last, commonly constipation; so I have never

neglected, when I was called during those moments, when a cure could be hoped for, to employ this remedy. Yet, should the above-mentioned contra-indications occur, no practical physician would prescribe it under such circumstances.

EMOLLIENT MEDICINES.

Among the internal remedies for the treatment of turgescence, these, after calomel, deserve the highest rank. It is for the physician to choose out of the many agents belonging to this class; only, he must combine with them no acescent matter, as it would come in a dangerous collision, because in the intestines, where it meets with calomel, it would occasion its decomposition, and render it corrosive; from which chemical process the most injurious consequences would follow. He may choose an infusion of the flowers of marshmallow, or a light, thin decoction of the

roots of mallow, or salep, or of the leaves of the mallow, sweetened with sugar. Instead of these may be substituted a solution of gum-arabic in water; to the arabic emulsion may be added nitre, or all these may be alternated: the mucilage is preferable to the emollients when colic pains have been excited by calomel, or in any other way. These mucilaginous and emollient remedies must always be made thin, in order not to excite an inclination to vomit, or not to increase it, if it is present. The temperature of these medicines should be that of the chamber in which the patient is kept; then only, when during the action on the alimentary canal, it is an object to keep up perspiration over the whole surface of the body during the cure of turgescence, these remedies should be given luke-warm, and may be mixed with sambucina. In those cases where the patients complain of violent head-ache, the arabic emulsion is far preferable to all other emollients, as it procures much quicker alleviation of this distressing pain.

The fox-glove, which plays so important a part in the treatment of the following stage, as a radical, as also later, as an excellent palliative; the sudorifics and diuretics, and also the strengthening medicines, have no part in the treatment of the turgescence. The last, cautiously given, are applicable only when, by the free use of calomel, of other purgative and weakening medicines, or by large blood-lettings, the strength has been reduced far below the natural state.

EXTERNAL REMEDIES.

These also are necessary in the cure of turgescence. The principal are blood-lettings, cold applications to the head, stimulating pediluvia, mustard cataplasms. frictions with mercury, and emetic tartar, blisters, glysters.

Blood-lettings, if such are to be employed

at this moment of the acute hydrocephalus, may be general, or local; the first are much less frequently applicable than the latter.

About the period and the age in which blood-lettings should be used, about the circumstances in which they should be employed, and about the quantity of blood, writers are of different opinions. Leroy applied leeches, if the forehead was hot, but not to children under nine months old; Monro began the cure with leeches; Whytt strenuously recommended both general and local blood-lettings; Tissot saw them produce the best effects; Weaver, Mathey, and Baader also drew blood by leeches. Odier, on the contrary, seldom saw bleedings do good, and even found them dangerous. Such was also the opinion of Portenschlag (the father). Yet, in another place, he gives the circumstances which call for blood-letting; the time and age for their employment; how long the wounds made by the leeches should be allowed to bleed; and lastly, the contra-

indications to blood-letting. Desessart says, if in children with large heads, blood must be taken away, it is only in small quantity. According to my experience, blood-lettings are fruitless in the water-stroke, pernicious in chronic hydrocephalus, and only in the acute hydrocephalus, at determinate moments, and under certain circumstances, efficacious and necessary.

Blood-lettings, in the turgescence of the acute hydrocephalus, are applicable not only in plethoric children without distinction of age, but in less phlethoric individuals, when it has been preceded by a violent agitation of the brain; and when the reigning constitution of the atmosphere is inflammatory, during which also, in other inflammatory diseases, blood-lettings are rendered particularly necessary. The circumstantial description how it is to be applied, shall be given where it is most frequently applicable, viz. under the head of Local Inflammation.

The cold applications of water, with or

without vinegar and salt, of which the coldness is kept up by a piece of ice, laid over the head, whilst internally the calomel has produced a derivation and re-action in the alimentary canal, are of striking efficacy, as Konradi, Stark, and other physicians have stated. Napkins doubled four times, soaked in the fluid, wrung out so that they are only moist, are to be laid over the forehead and head, and changed as soon as they cease to be cold; they are to be continued until all the symptoms which indicate this stage of the acute hydrocephalus have ceased.

Luke-warm pediluvia with salt, mustard, vinegar, ammonia, and such like, are good derivative remedies: the patient may twice, thrice, or even oftener in the day, remain in them an hour long; they are applicable at the same periods in which the cold applications to the head are useful.

Mustard cataplasms are used for the same object as the foot baths, applied to the soles of the feet, on the calves of the legs, or the

nape of the neck, and suffered to lie there until the patient feels their action. They must often be employed instead of the pediluvia, because the application of the latter, particularly in little children, is not always possible.

Baths for the whole body, and half-baths, though Evan, Fleisch, Jahn, and others proposed them, and Quin has seen them produce good effects, are certainly not employed in the acute hydrocephalus with such good effects as in many other diseases. They always increase the rush of blood towards the head, and even the *stimulating* baths (Stutzischen reizenden bader) by which I have saved so many children supposed to be lost from other diseases, especially from repelled febrile eruptions, and which I have repeatedly employed in the stage of palsy at the only time at which I could expect them to afford relief to the spasmodic symptoms, are utterly useless. I may even say they increase the turbulence and fierceness of the symptoms, and lead more rapidly to death. Burning heat, great

redness of the whole body, especially of the face, great anxiety, exhausting sweats; in a word, an aggravation of the disease, were the results of my repeated trials of this remedy.

Half and whole blisters were also sometimes employed in this period of the disease; and in phlegmatic unplethoric children they produced good effects: the most convenient place to which they can be applied is, as I shall afterwards state, the calves of the legs; and the length of time during which the excoriated part should be kept discharging will depend on the quickness or slowness of the amendment.

From the mercurial frictions which Quin, Perkins, Warren, Mathey, Dobson, Percival, Dunkan, Richter, Mier, Kampell, Mosely, Kason, Mathie, Odier, Wichman, Hopfengartner, Von Portenschlag (the father), Plenk, and many others have employed, not much is to be expected in the cure of turgescence, because of the slowness of their operation; yet this is the time for

employing them, if we expect from them any assistance in the subsequent stages of this disease, in case it passes into them. The occiput and nape of the neck, and the thighs, are the places to which they should be applied. If the mercurial ointment (unguentum Neapolitanum) is employed, a whole ounce must be rubbed in in four-and-twenty hours, that is, a drachm every three hours. If calomel is chosen instead, four or six grains in some vehicle may be rubbed into the same parts. These frictions may be employed at the same time with the internal use of calomel, and may be continued for twenty-four or thirty-six hours.

For the purpose of producing a revulsion, the tartar emetic ointment is serviceable; the time and the place where such frictions should be made are nearly the same as in the mercurial frictions: but more particularly on this subject in the following stage.

The diet, during the first stage of the

acute hydrocephalus, should consist of light broths, milk, thin gruel, and cooling drinks. Seldom under the use of the remedies recommended do the patients long much after food; even their favourite dishes they can see stand before them with indifference. Children at the breast, or reared artificially, should take the same as before the disease, only the former should be put seldomer to the breast, and not suffered to suck so long as in health, and the latter should take their customary food in smaller portions; fermented liquors must be denied them, and nothing which can create acid in the alimentary canal, where, by its union with calomel, it would be injurious, should be given to the patient.

In the use of the internal and external remedies, in the diet, and other measures, we must persevere until the previous state of health is again established, or until the disease has passed into the stage of inflammation; even after the most perfect re-establishment of health, it is necessary to caution the parents and attendants to restore

them to their former mode of living very gradually.

THE TREATMENT OF ACUTE HYDROCEPHALUS IN THE INFLAMMATORY STAGE.

In this stage likewise, it is possible to save the patient, provided the physician who is called knows how to employ the appropriate remedies, and neglects nothing. Late interference, and ignorance of the disease, are the sole causes of the great fatality of the acute hydrocephalus. Should my warning to mothers have contributed any thing to the diminution of the customary oversight of its first symptoms, and the present treatise render those physicians who are sceptical about its frequency, more watchful of this disease, and throw any light on its diagnosis, my earnest wish to be serviceable to mankind will be fulfilled.

After the diagnosis has been accurately

decided, if a consideration of the causes, the peculiar constitution, and the reigning character of the stationary diseases, leads the physician to draw blood, the proper quantity must be taken, as quickly as possible, by general or local blood-letting, the former, from the arm or foot, the latter, from the nape of the neck, or behind the ears; and after an accurate deliberation of all the circumstances, and a severe scrutiny of all the appearances which occurred during the bleeding, and after the same, it may be repeated — here we may, by substracting too little or too much, sacrifice the life of the patient. I here make a candid confession that at the time when the exciting theory reigned, I might perhaps have saved some patients to whom I was called during the period of inflammation, if a fear not grounded on experience of great blood-lettings, or the physicians with whom I was in consultation, had not deterred me. Henry A. a boy about four years old, the child of a merchant, for whom the physicians and parents would not allow the blood-lettings,

which I would have undertaken in the favourable moment, to be employed, was certainly a sacrifice to the reigning doctrine, (case, No. 20.); likewise, Ignatius von B. a lively boy of four years old, to whom a country surgeon, in the tumultuous attack of the disease with convulsions, gave stimulants, and who was afterwards brought into town, and entrusted to me, was strikingly improved by the application of leeches. I had strong hopes from the repetition of a local blood-letting behind the ears, and the further use of calomel, and the antiphlogistic treatment. A domestic surgeon who was employed to sit up with the patient, ignorant of the disease, resisted my directions, and so worked on the parents of the child, that they no longer took my advice. In the stage of local inflammation, he gave the Peruvian bark, all the symptoms became aggravated, and the patient soon passed into a hopeless state.

The great and justly celebrated Wichmann, who, by his weight and authority with

practical physicians, seems to have made this excellent remedy neglected, deserves here the same censure for his therapeutics, which, regarding the croup, he has received for his diagnostics. The fatal mistake which many physicians of Germany committed on his authority, of treating the croup as the asthma millari, has been occasioned by him.

In healthy, active, strong, plethoric children, in the first six months of life, particularly after violent agitation of the brain, and in an inflammatory season, two, three, and in pressing cases of violent tumultuous accession of this stage, four ounces of blood may be drawn; from six months to one year, three, four, even five ounces may be taken at once with great advantage to the patient; in the second, third, and fourth year, the violence of the symptoms often demands a blood-letting of four, five, or six ounces, and in the later years of childhood, a still greater, which according to circumstances, sometimes requires to be repeated. An accurate determination of the quantity of blood

which ought to be drawn, must always be left to the discrimination of the physician, who, during the blood-letting, should always be by the patient's side. Likewise, if it requires to be repeated, his presence is demanded; but long experience has taught me, that when the first bleeding was sufficiently large for the vehemence of the symptoms, a second was seldom required; and that repeated small bleedings never so quickly and surely fulfil the wished-for object, as one full one at the proper time.

In feeble children, when the reigning epidemics and stationary diseases demand no blood-letting, the discrimination of the physician, and a certain practical tact, must guide him in determining the quantity of blood which is to be drawn, so as not to exceed the proper bounds.

It is important for the physician who has to prescribe, to know, that in cases of hydrocephalus, excited sympathetically, occurring symptomatically, or from me-

tastasis, and in cachectic individuals, if blood-letting should be indicated, it must be employed with the greatest caution; or if under the circumstances stated, others occur as reasons for blood-letting, but the physician concludes that it is needless and unsuitable, let him take care to draw only a harmless quantity of blood, if some must be taken to fulfil the wish of the consultation physician, and secure his own character in an unhappy termination of the disease, which would otherwise be ascribed to a neglect of this remedy. In the acute hydrocephalus, which follows contagious aphthæ, or a chronic internal hydrocephalus, or a general glandular disease with hectic fever, or the repulsion of febrile, or chronic eruptions of the skin, or suddenly suppressed chronic discharges from ulcers; likewise those which in larger children follow too intense and continued study, blood-lettings if considerable, may rapidly lead to death.

In small, well nourished children, it is difficult to open a vein, even when the

same is indicated; and in very fat children, there are great difficulties even in the third and fourth year of life; but as local blood-letting, which most physicians prefer, will attain the same object, and is less difficult, in those cases where the blood must be taken away quickly, many leeches may be applied at the same time to the temples, or behind the ears. This method, in quickness of action, is not much inferior to general blood-letting; consequently, we should, in this infantile age, prefer local blood-letting to general, and not lose time in attempts to employ the latter.

After this period of life, in very great and pressing danger, in order to act as quickly as possible, a general blood-letting must be employed and sometimes be followed by a local blood-letting: a repetition of the general blood-letting, in my many patients, I have never found necessary.

The application of leeches to the entrance into the nostrils, which the great Peter Frank recommended, and by which,

most rapidly, the turgescence in the blood-vessels of the brain may be diminished or lessened, is, in these little patients, attended with difficulty and danger ; for often the bleeding is stopped with great difficulty, because the children, by moving the muscles of the face, loosen the sponge, or by violently breathing through the nose, blow it away. This is not the case with the other parts which have been mentioned, where the requisite pressure can be conveniently applied to the bleeding bites. Further, the parts mentioned by Peter Frank are in the highest degree irritable; the wounds inflicted by the bites of leeches are liable quickly to inflame, and the inflammation commonly spreads over and within the nose, by which the respiration through the same is impeded or stopped, and the suffering of the patients is considerably increased by the pain which accompanies it. Twice I made this attempt, and laid two leeches to the entrance into the two nostrils, and each time not only had I to strive with the above-mentioned impediments, but this artificial inflammation

assumed a chronic course, and one of them, who had been saved from death, ran great risk of permanently losing the organ of smell.

If, after the first blood-letting, either because it was too small, or because fresh vehement symptoms require a repetition, it must, in order to attain the object, and to have the wished-for efficacy be performed after a short interval, for the prevention of effusion often depends on a few minutes; a repetition of the blood-letting is especially necessary, when the physician, during the first great blood-letting, and some time afterwards, detects more regularity in the beats than previously, but the former irregularity, which led to the first bleeding, soon returns, and all the other symptoms undergo a fresh aggravation.

To be able to determine accurately the necessary quantity of blood which is to be drawn, it is in the highest degree necessary that the practitioner, beside the consi-

derations already mentioned on the age, bodily constitution, the reigning character of disease, the exciting causes and such like, likewise direct his strictest attention to the pulse and to the distressing pains in the head, about which the patients, by signs and words, bitterly complain. As long as the former continues irregular, and not very weak, as long as it does not return to the regularity of a natural, or a febrile pulse, and as long as a diminution of the vehement characteristic pains of the head, or a state of weakness does not take place, the blood may be allowed to flow. With these guides, let not the physician be deterred by the anxiety of the attendants, about the great loss of blood, from withdrawing the requisite quantity; he should follow Formey's excellent advice, and suffer nothing to induce him to yield to another mode of treatment; rather let him give up the patient than suffer others, be they laymen or medical men, to seduce him from his diagnosis and treatment, when they have once been attentively and accurately decided upon. By such conduct, his character as a practical

and rational physician will be firmly grounded; particularly, if after the death of the patient, which he may with certainty prognosticate under an opposite mode of treatment, he procures an inspection of the body.

At the same time at which the requisite blood-lettings are undertaken, internally the antiphlogistic remedies, and with them the calomel must be carefully administered to the patient; the former must be given luke-warm, liberally, and at short intervals; but in little infants, in doses proportionate to their age; and the latter, as I have already said of the treatment of turgescence, must be persevered in until colic pains occur, and several green stools follow. Only I must remark, that the calomel, in this stage of the disease, even in large doses, will often be given twenty-four hours without producing any stool, and that the patient will often have taken ten, twelve, fourteen, and even more grains, before a stool is procured. In these cases, as I have already said, some grains of roasted jalap

should be mixed with the calomel; besides which, glysters of camomile tea with soap, honey, salt, sugar, and such like, should be employed, in order to hasten the action of the calomel, which (I now repeat once for all) is not indicated later than in this stage of the acute hydrocephalus, nor can contribute to the cure of this disease.

The emollient and antiphlogistic medicines, which in the former and present stages play an important part in the radical cure, contribute also, as palliatives of the acute hydrocephalus, greatly to the alleviation of the symptoms, particularly in connection with an infusion of digitalis, of which I shall speak more particularly in explaining the use of this great agent.

With the emollient and antiphlogistic remedies, which as I have said are of great efficacy in the two first periods of this disease, may be employed gentle diuretics and sudorifics with great advantage to the radical cure; the action which they excite in the organization of the skin and

kidneys, weakens the orgasm in the head, perhaps, in the same degree as calomel by its action on the abdominal viscera. A decoction of mallow, or salep, with a small dose of acetate of ammonia, freshly prepared and perfectly saturated, (see Formulæ 1, 2, 3, 4, 5, 6.) may be given in small portions, and at short intervals : for example, every hour, one or two spoonsful, milk-warm, or only once an hour; but in the intervals, luke-warm emollient drinks or tea made of roots, leaves, or flowers of the above-mentioned herbs, assist in the attainment of all these objects. Generally, in the use of sudorifics and diuretics, it is not necessary to observe any determinate hours ; but the more the patients will take, so much more certain is their efficacy. That all violently stimulating sudorifics and diuretics which quicken the circulation, expand the circulating fluids, and increase the determination to the head, are inadmissible in this period of the acute hydrocephalus will be clear to every physician.

OF THE USE OF THE DIGITALIS PURPUREA.

As this medicine has been supposed by many writers to possess great diuretic powers, it has been cursorily treated of among the diuretics; but though it has been highly appreciated by men of weight, as by Withering in dropsies generally, and by Weaver, Formey, and others in the present disease, yet after having tried it for sixteen years, and in several hundred cases of the acute hydrocephalus, I am convinced that it has not afforded that great benefit which it does in the treatment of the acute hydrothorax after scarlet fever, and coughing of blood, in the form of an infusion in the emulsion of gum arabic; yet in the stage of turgescence and inflammation, in connection with calomel and antiphlogistics, after suitable blood-lettings, where, with diminished power, there prevails an increased sensibility of the arterial system, it is very efficacious, as these combined remedies produce a powerful revulsion, by action on the ali-

mentary canal and the urinary passages, occasioning determination *from* the head, and increasing the evacuations by stool and urine. Even in the after-cure, when the morbid irritability of the blood-vessels will not yield to the strengthening remedies, and the urine is not passed in sufficient quantities, it is of great efficacy, diminishing or rapidly removing the former, and greatly augmenting the secretion of the latter.

The dose of the powder of digitalis, in combination with calomel, is to half a grain of the latter only an eighth of a grain of the former, with ten grains of sugar (Formulæ 9 and 10); such a powder may be given every two hours, until the above-described effect of the calomel follows. As this remedy, in this small dose, produces no inclination to vomit, which in this disease is highly injurious, it is not advisable in the stage of turgescence, and still less in that of inflammation, to give a larger dose of it. To little children this powerful remedy can be given more easily in infusion than

in powder; combined with the emollient infusions and decoctions, it may be given in place of drink, and in this form, when the calomel must be discontinued, can be most conveniently given. I prefer the infusion of this plant, in combination with emollients, to that of the powder with calomel, for this reason, that I can uninterruptedly persevere in the use of it with the antiphlogistics, when, if I were giving it with calomel, and the latter has already produced the wished-for effect, I should be obliged to desist from it for some time, or give it in another form; and because the powder hangs to the spoon in which it is stirred up with water, or remains adhering to the lips and to the mouth, by which a great part of this powerful medicine, which we are compelled to prescribe in small doses, and which should all be efficacious and useful, is lost.

In the other two stages, in which all the remedies have hitherto been fruitless, and perhaps will for ever remain so, the digitalis, especially when it has already been

given in the previous stages of the disease, and is now persevered in, possesses a power which no attentive observer can deny to it, namely, that it renders the violent convulsions which indicate the accession of the last stage, far milder, and prepares a gentler death, than commonly takes place without the digitalis, especially under the use of strong stimulants.

The digitalis seems to have little influence on the colour of the urine ; I never saw it much changed, even when this medicine had been given at the beginning of the disease, and persevered in a long time. Likewise, in the two first periods of this disease, I never saw the urine much increased beyond the natural quantity, but it passed in larger quantity, and oftener, than without this medicine ; but in the stage of effusion, when it is usually passed unconsciously, it is seldom in larger quantity, and in the last stage of the acute hydrocephalus, particularly after the eruption of the death-sweats, it is commonly wholly retained.

It was striking to me to remark that the digitalis, which is generally known to occasion irregularity in the pulse, and after a persevering use, a preternaturally slow pulse, in this disease produces little or no change, either in the stage of inflammation or in that of effusion; that in those periods of the disease it neither renders the pulse slower, intermitting, nor irregular, as in other diseases in which the brain does not suffer; but that, on the contrary, the irregularity, during its use, is the same which is remarked in the pulses of our other hydrocephalic patients, who did not take this medicine.

In the stage of effusion, and even in that of palsy, when the patients complain of strong thirst, yet fluids may do harm, I give the digitalis as a medicine and as a drink. In these two periods of the disease it is unnecessary to distinguish the times at which the patients ought to take a certain quantity of it; because often for one or more hours they cannot swallow, but they have moments in which they take

fluids with ease and eagerness; hence we must use these moments to give them a larger quantity of this remedy. (Formulæ 7 and 8.) As in these two last stages of the acute hydrocephalus an inclination to vomiting is no longer remarked, there is no contra-indication to its use; I have always seen, under the use of this remedy, when no powerful stimulants in large doses are employed, a gentle death, without violent convulsions, and for the most part without spinal cramp, follow; consequently I recommend physicians to employ it with slight sedatives.

EXTERNAL REMEDIES.

Of the most important of these, viz. blood-letting, I have already spoken. Cold applications to the forehead, foot-baths, mustard cataplasms, half or whole blisters, mercurial frictions and glysters, in how far the same are to be employed in the

cure of turgescence, have been treated of under the cure of that stage; under what circumstances they are to be used in the present stage of the disease, I will shortly state, and at the same time speak of the application of setons and caustics.

The cold applications to the head, which Wilmers, Baader, Fleisch, and Portenschlag (the father), under the circumstances I have already mentioned, employed and praised, and which form an important part of the treatment of turgescence, must also, in this period of the acute hydrocephalus, with attention and care, be employed, till either the hydrocephalic symptoms are removed, or the disease passes into the stage of effusion. Formey recommends the affusion of the head with ice-water, but this is attended with great difficulties, as the head, which should lie high, must be held quite out of bed, and somewhat low, that the cold water may not run down the back. and produce violent shivering, with chattering of the teeth. If the patient is affused in the bed, its being wet may produce the same accident; I have seen cold

washing, in scarlet fever, produce this violent shivering, and by that means the water-stroke.

The striking benefit which Formey attributes to the affusion of ice-cold water on the head, I have seen as well produced by cold applications in the stage of turgescence and inflammation; the soporose unconscious state which no other means can change, often vanished in a few hours, often in a few minutes, under the application of this remedy; but excepting in these stages of the disease, I saw none of my patients recover by it. Whether the return of consciousness in the stage of effusion, but particularly when it happens in the stage of palsy, is to be reckoned the effect of the cold affusion is liable to much doubt, particularly as this appearance, as I have stated in another place, also occurs in patients whose heads have never been affused with cold water.

Foot-baths, which Baader and other writers recommend, and which, in the tur-

gescence, without injury, and with great use may be applied, are, in the period of inflammation, attended with great difficulties; as at this time the patients cannot be kept in an upright sitting posture long enough to produce, with the other remedies, a revulsion from the head. I have always seen giddiness, confusion, vomiting, or at least an inclination to vomit occur in my patients when I have kept them only half an hour sitting in the foot-baths. In place of these, mustard cataplasms should be applied to the soles of the feet, and suffered to remain there until the patients feel an irritation in the parts they cover, when the wished-for object of revulsion is attained.

Warm, stimulating, strengthening baths I have found at every period of the disease attended by no good consequences. Anxiety, increased head-ache, nausea, vomiting, and such like, were every time the result either in the bath or afterwards, without any increase of urine, and without the slightest alleviation of the violent symptoms; it was only in the convalescent state that I experienced the beneficial effects of

emollient or strengthening baths, when I had employed the one or the other according to circumstances: the former afforded the emaciated convalescents great benefit, if their rough, dry, foul skins had been previously cleaned and stimulated by a mustard bath: The continuation of the baths depends on the quickness or slowness of their effects; stimulating baths are of great efficacy in those individuals for whom the arnica internally was indicated. To determine whether these baths should be used every two or three days, how long the convalescent should remain in at a time; how often they should be repeated, how long persevered in, and lastly, how high should be the temperature, are points which the physician, with the patient before his eyes, can best determine.

With regard to glysters, stimulating ones should be given only when the calomel does not act quick enough, or does not procure sufficiently large evacuations; and emollient mucilaginous ones when the stools become too frequent, or the pains

in the belly, which are liable to follow the use of calomel, are severe.

Setons and issues, which in the chronic hydrocephalus, and in the hydrorachitis, are powerful agents, are in every stage of the acute hydrocephalus, fruitless, because their action is so slow; but if the physician is so fortunate as to remove the hydrocephalic symptoms, they serve to prevent a relapse.

Frictions with tartar emetic ointment, neither as a means of cure, nor a preventive of relapse, do I advise, because for the first they act too slowly, and for the second, in the convalescents to whom, during the progress of the disease, this remedy has been plentifully used, the appetite returns much later than in others in whom this remedy was neglected.

The frictions with quicksilver, of which Mosely speaks so loudly, are, unless they are used in the stage of turgescence, equally fruitless, because they begin to be efficacious

in a subsequent stage of the disease, when a cure is no longer possible.

Drawing plasters in the treatment of the acute hydrocephalus, are amongst the best external remedies; they raise the sunken activity of the skin, and powerfully assist the derivation from the head: the physician must, as accurately as possible, calculate the time when they will begin to draw, and manage so that their action will commence when the bleeding must be put a stop to. The parts which the blisters have excoriated must, according to circumstances, be kept suppurating a shorter or a longer time.

The point of time at which the blisters will not, by their irritation, injuriously increase the turgescence in the head, but will occasion a beneficial revulsion and derivation from it, is always after previous blood-letting, when these are necessary.

About the place on which the drawing plaster should be laid, there has been

much dispute. Portenschlag (the father) says, in the worst cases, over the whole head, in slighter cases, to the back of the head, and for a long time kept discharging. Evan applied them to the nape of the neck; Odier, to the occiput; Weaver, and Mathey, behind the ears; Fleisch, to the occiput; and most of these writers advise the blisters, even after the disease is cured, to be kept discharging, to prevent a relapse.

I think that the difference of writers about the part to which the blister should be applied, would have been easily prevented if they had first agreed in what periods of the acute hydrocephalus they were to be employed for the radical cure, and in what only as palliatives for relieving the violence of the symptoms, and in what they were wholly fruitless; likewise, what external remedies should be used at the same time, and to what part these should be applied.

It is certain, that only in the first and second stages a perfect cure of this frightful disease is possible; this appears from

manifold experience, and from the candid confession of those physicians who are lovers only of the truth. Now where can the blisters be applied in connection with the internal and external remedies in these stages of the acute hydrocephalus? As in these two first stages, cold lotions are applied to the head with great advantage, as on these parts the local bleedings have already been made, and as in these periods of the disease, every irritation on the suffering part, from which we ought to cause derivation, obviously increases the orgasm in the same, and blisters are certainly among the strongest external stimulants, particularly if they are applied over the whole head in the form of a hood, the hairy scalp cannot be the proper place for the application of blisters.

Why they should not be laid on the occiput, the nape of the neck, or between the shoulders, I have already partly explained under the treatment of turgescence; and I have only now to add, that drawing plasters on these parts are often

prevented from acting, by the blood oozing out of the little leech-bites on the head, or by the cold applications to the head, or by the medicines and drink which have been spilt and run to these parts.

According to my opinion, the belly and the præcordia, because of the great sympathy between them and the head, are the fittest places to which large or small blisters can be applied, and where they can neither be removed, nor in any way disturbed in their action; but as in these parts, in the acute hydrocephalus, the skin is at first dry, and contracts into wrinkles by the shrinking of the belly, and the drawing plasters, according to my repeated trials, often remain days long without acting, and thus the favourable moments in which we can derive help from these remedies are wasted, this place cannot be selected for their application.

The thorax, to which in diseases of the lungs and pleura, blisters are applied with the best effects is, in the acute hydrocephalus, according to my experience, not the fittest

place, because, between it and the head, there is not so quick a sympathy as between the head and the belly. There is another circumstance worth considering, that the patients who, in this disease, so often involuntarily sigh, at every deep inspiration experience pain from the blisters on the chest.

The fittest places for blisters are the calves of the legs, the thigh, and the upper arm. When the danger is not pressing, I am accustomed to apply drawing plasters only to the first; but if the symptoms are very vehement, blisters also must be applied to the thighs and upper arms; that they should be applied as speedily as possible, so that their action may begin immediately after the necessary bleedings, and may externally, like the calomel internally, at the same time effect a strong revulsion from the suffering parts, has been already said.

If the physician has been so happy, by the application of suitable means, to arrest

the effusion of serum and lymph into the cranium and brain, he must deliberate with great accuracy, which remedy, after the object has been attained, must be first left off, and with which he must still longer persevere in order to prevent a relapse of the conquered disease. This object he will most surely attain, if he keeps the excoriated parts where the blisters have been applied, discharging even during convalescence, and suffer these artificial ulcers only gradually and slowly to heal, when the patients are perfectly recovered.

OF STIMULATING, STRENGTHENING REMEDIES.

Stimulating, strengthening remedies, of which there are internal and external, have been celebrated in the acute hydrocephalus by many great practitioners; almost every writer choosing out of this class one as his favourite. They prize the efficacy of these remedies in this disease uncommonly high, but without determining in what period of the disease, and under what circumstances they should be given. To the experienced practical physician, it is not difficult to determine how to prescribe them, when and in what quantity to give them, and which is the period of the disease when they will be most suitably employed. But the beginner, who has never had an opportunity of observing this frightful disease skilfully treated, but knows it

only from books, will commit many mistakes, until he learns, by accurate observation and his own experience, how, when, and where stimulants in this disease are to be employed, and under what circumstances this, or that, is preferable to a third. Mier and Odier gave the Peruvian bark; Portenschlag, (the father), valerian, castor; Percival gave musk and opium; Desessart gave sarsaparilla; Girtanner concluded the cure of the acute hydrocephalus with the infusion of bark; Hopfengartner employed musk with ammonia, the snake-root in infusion, the flowers of arnica in infusion, wine and the Peruvian bark; Armstrong used assafœtida with Mindererus's spirit. The volatile and fixed stimulants, which quicken the circulation of the blood, increase the warmth of the body, and augment the determination of blood to the head, are totally out of place in the radical cure of the disease, in the first and second stages; that is, in the turgescence and local inflammation, because the action of these medicines must obviously aggravate the symptoms of this disease. They can

be serviceable only after removing the turgescence, or subduing the inflammation, and then only, in those cases in which the previous remedies, after averting the most imminent danger, have left the patient in a state of signal exhaustion, or the peculiar constitution requires them. As curative means, therefore, their employment begins in the after-treatment; but as palliatives in the two last stages of the disease, they are, next to the digitalis, the only means which can render bearable the pitiable and hopeless state of the patients; but they must be used with caution, with skilful selection, and in smaller doses than in other forms of disease; in very large doses, they would not only be useless, but certainly aggravate the sufferings of the patient.

In the after-cure, or treatment of the debility which the remedies have occasioned, bark, valerian, arnica, camphor, musk, castor, deserve the preference before the other medicines of this class; and in great morbid irritability of the arterial system

the digitalis, in combination with one of the above-mentioned strengthening remedies, is the most effectual medicine for rapidly removing this morbid state.

If the muscular strength is greatly enfeebled, the Peruvian bark is more efficacious than any other strengthening medicine. In increased spasmodic irritability of the nerves, valerian, with small doses of camphor, castor; and in the opposite cases, where there is a torpid diminished excitability of the nerves, the arnica with Hoffman's spirit, deserves the preference, or a combination of nitrous æther, and spirit of hartshorn; in those states in which the arnica is indicated, should a diarrhœa be present, the root is preferable to the flowers; but if in the cure of the debility the physician remarks, that although there is a remarkable improvement in the excreting organs, the skin nevertheless remains inactive, let him add small doses of camphor.

Of the Peruvian bark, the decoction is commonly employed; it should be given

in milk, which is certainly the best vehicle for it; it is easily mixed, forms a kind of coffee, and may be given to children of all sizes. The milk should, if possible, be fresh from the cow, and not boiled, but only warmed to that degree which is pleasant to drink, or the cold milk may be mixed with the hot decoction of bark, and given in that degree of warmth in which children usually take their food. If it is not possible to procure the milk fresh from the cow for each dose, (and this is commonly the case in towns,) but a sufficient quantity must be taken at once for the whole day, then before it is mixed with the Peruvian decoction, the cream should be carefully taken off, otherwise the delicate stomach will be overloaded, and a new disease be occasioned, which will precipitate the patient, scarcely rescued from death, into a new peril.

The dose of the Peruvian bark to a child of a year old, or less, is 1 drachm, boiled in water so as to strain off 2 ounces, of which half should be given in the fore-

noon, the rest in the afternoon. To one part of decoction, three or four parts milk are commonly added, and sweetened with sugar. To larger children, this remedy may be given in the same way, in larger doses, with less milk, as mixed in equal parts. (Formulæ, 14, 15, and 16.)

The addition of stimulants, as Hoffman's spirit, tincture of cinnamon, strong wine, with which it is common in other diseases to give the Peruvian infusion or decoction, I have never found in this disease necessary; nay, I consider the use of these means, in combination with bark, objectionable; as in this case, as well as in croup, after the inflammation and danger of effusion have been removed, relapses of inflammation in the structure of the brain are easily produced.

In very emaciated patients, especially when they are subject to frequent dry cough and febrile catarrhs, the bark boiled with salep is very suitable; but to children this mixture is not nearly so pleasant as that

with milk; besides, it has another bad quality, which nauseates the little patients, viz. the decoction, if it stands some hours in a warm place, or in summer-time, it changes rapidly. The quicker or slower effects of this excellent remedy must determine how much should be given, and how long it should be continued.

If diminution of muscular power is attended by increased irritability of the nerves, the bark should be given with valerian; and in the opposite state, where the irritability has sunk to torpor, or where this state is accompanied by diarrhœa, it should be combined with the arnica (Formula 51.) boiled in whey. I have a few times employed the bark boiled in whey for the after-cure of the acute hydrocephalus, but I have every time found, that under its use the appetite began to diminish, consequently I took care no more to give it with the whey.

The valerian, as I have already remarked, deserves the preference, where there re-

mains a spasmodic irritability of the nerves, and brings back more rapidly, than the other remedies of this class, the disordered state of the nervous system, to its natural condition; but the consideration that this medicine, from its unpleasant smell and taste, is hateful to children, renders the employment of it often very difficult, particularly as we have no vehicle by which we can render it less disgusting.

Of this remedy the infusion and extract are used among us; the first is given sweetened with sugar every hour or two, in doses of one or two table-spoonsful, (Formula, No. 19.) the latter, mixed with aromatic waters, with or without another nervous medicine, but always mixed with sugar or syrup, and as much as possible rendered pleasant by this means; or mixed merely with syrup, as a linctus of which, in a determinate time, a half or a whole drachm, (Formula No. 22.) or even a larger quantity of it may be taken, (Formulæ, 23. and 24.).

That there are cases where the valerian must be combined with the bark has been previously mentioned, and the case often occurs that the efficacy of the valerian may be augmented with still further slight nervous medicines, as with musk, castor; (Formulæ 47. and 48.) if the state which the valerian is intended to relieve, is accompanied by slight twitching of the limbs when the patient is at rest or asleep, the musk, in combination with valerian, is the best remedy.

Great sensibility of the nerves of the abdominal viscera is most speedily removed by valerian, with castor in mucilage of gum arabic, (Formula 49.) In the cases which require valerian, if the excreting organization of the skin is in a state of great inactivity, it is very easily removed by the addition of camphor, (Formula 50.) If the irritability of the blood-vessels rises above its natural state, the digitalis is an excellent means of lowering it to its proper degree. This useful remedy, in connection with some one of the suitable strengthen-

ing and stimulating medicines, in those cases where the secretion of urine is deficient, is of great use. (Formulæ 41. and 42.)

With regard to the arnica, of which some writers speak with great confidence, it is almost as difficult to give as valerian to little children; besides, by its unpleasant taste, it may produce nausea and retching. Luckily this remedy, in this disease, is indicated only in a certain degree of insensibility, or dulness of nerve, in which state these unpleasant and injurious effects are not so easily produced.

Of the arnica, the root, the flowers, and the extract of the flowers are in use; the two first are infused, and the extract is given in mixture with the other suitable remedies.

If the patient in that state in which the arnica is indicated, is troubled with diarrhœa, the infusion of the root is preferable to that of the flowers, (Formulæ, 28. and 30.)

To these may be added ten, fifteen, or twenty drops of liquor cornu cervi succinatus, spiritus nitri dulcis, and æther sulphuris, according to circumstances. To children of one or two years old, three or four ounces of the strained liquor within twenty-four hours is sufficient; in older patients, or when the sensibility of the nerves is greatly diminished below the natural state, four, five, or six ounces, in which a drachm has been infused, with or without the addition of one of the volatile stimulants mentioned above, should be taken internally within twenty-four hours.

If the symptoms which this remedy is intended to remove speedily vanish, it should be continued but for a short time; but if the improvement is slow, it must be continued a longer time, and in larger doses.

Should this remedy, by being long used, produce the above unpleasant effects, that is, should it take away all appetite, excite nausea, or even vomiting, it is necessary to intermit its use, and employ other medi-

cines suited to the case, until the impediments being removed, we can again persevere in it until the object for which it is given is attained.

The Virginia snake root, the polygala senegæ, may claim a place where the valerian is efficacious. I prefer the latter in the cure of the debility, after the effusion has been arrested, and the inflammation removed, to the former; because this drug, during its long journey, loses much of its power in various ways, and comes into our hands adulterated with other things. The dose, in the form of infusion, is the same as that of arnica and valerian.

Musk, castor, camphor, which, for the debility may be given, rubbed with sugar, in the form of a powder I rather advise to be given in combination with other suitable medicines, in the fluid form, because to little patients it can be got down much easier than in powder. The dose is of each, every hour or every two hours, a quarter, a half, or a whole

grain, (Formulæ 47. and 48.) in a mixture with gum-arabic, from three to six grains of musk, or castor; of camphor, from one and a half to three grains, may be given in four-and-twenty hours; larger doses of the last make the little patient restless, and produce a dull pain of the head, which must be avoided.

Opiates are not advisable; hence, when diarrhœa is present, other means must be used to relieve this symptom.

With regard to the use of wine, which many physicians, after Odier, have recommended, old Rhenish, Madeira, Malaga, especially old genuine Tokay, which from experience I prefer to all others, are good strengthening remedies. The volatile alkali, which Baader places by the side of wine, I have never used, because of its nauseating taste, neither shall I ever resort to it whilst I can procure wine. The quantity of wine which is to be given as a strengthening medicine, must be determined by the judgment of the physician, who

must discriminate carefully each individual case.

That the temperature of the room in which the convalescents are placed in this period of the cure must be cooler than after the cure of croup, is sufficiently obvious; likewise, the position of the head must now be more elevated, and the patients be carefully guarded from mental irritation, indigestion, cold, and agitation of the head.

Before I pass to the palliative treatment, which, in the two last stages, is the only one which is applicable, I must for once draw attention to that state of the patient in which the symptoms of inflammation and of effusion seem mingled with one another. Under these circumstances, I advise always that the radical mode of treatment shall be pursued, particularly when the patients from time to time express vehement pains in the head by a piercing cry, and only then to pass to the palliative treatment when all the symptoms which indicate inflammation have vanished. Two

happy cures, which Dr. Fidler and Surgeons Nusser and Frankenstein can testify, taught me this. (Case No. 30.)

As some, at the beginning of the effusion, may be saved by the antiphlogistic treatment, it is the duty of the physician to persevere in the same, and to employ all those means which I have proposed for the cure of the second stage, until he has absolute certainty that effusion has happened, for, by this means he exposes the life of his patient to no risk, and, without doing harm, may save the life which has been entrusted to his care.

I have still an external remedy to mention, which Hippocrates, Forestus, Severinus, and Le Cat recommended, which Morgagni censured, Fabricius, Hildanus, and Flagani saw followed by death, viz. the perforation of the cranium; as in this disease, not only serum, but likewise coagulable lymph, is effused within the brain, and as in 180 bodies of patients who died of acute hydrocephalus I always saw coagu-

lable lymph which covered the upper surface of the brain, and lined the walls of its ventricles; and as I always found even the serous fluids collected in the ventricles of the brain, I conclude that this method in the acute hydrocephalus is utterly useless. Nothing can be more true than the words of Portenschlag (the father), where he, speaking of Hippocrates's mode of opening the head, says, "One would almost believe that already, in ancient times, it had become customary to cure diseases in the study, and at the writing-desk, rather than at the sick-bed." Munro advised trepanning, in order to evacuate the water collected in the brain; but he says, that in a boy, three years old, it was done without success, as no water was found; notwithstanding, a sound was introduced into the wound; that the child died three months afterwards, when two pounds of water were found in his head. Fearful as this operation is, we could certainly persuade parents to suffer it to be attempted on their children, if one could answer with certainty for its good effects; but in what light would the phy-

sician stand in the eye of the world, who should employ this frightful method, though experience had proved its uselessness?

PALLIATIVE TREATMENT OF THE STAGE OF EFFUSION.

That in that stage of the acute hydrocephalus, where the effusion of serum and lymph has already happened, no other than palliative remedies are applicable, experience has sufficiently proved. I refer physicians to the excellent remarks of the two Wenzels, and freely declare with them that a painful process at this period of the disease, as blisters over the whole hairy scalp, great caustics, or burnings with hot iron in the nape of the neck, and other parts of the body, which, in a few other diseases may have good effects, are here useless, aggra-

vate the pitiable state of the sufferers, and are honourable neither to the heart nor the head of the physician who applies them.

Should the physician see in the present symptoms when he is called in time that, in spite of his efforts, and of the pointed use of the suitable remedies, the effusion of serum and lymph in the cranium has happened, or, should he find his patient, at his first visit, in this period of the disease, which is the most common case, then he should take care that gentle nervous medicines, and the infusion of digitalis, should be given, without force and compulsion, in the gentlest way, to the patient, now in a hopeless state; that he should be made to sit up, either not at all, or only very slowly, to take drink, medicine, or food, and that every thing should be avoided which can violently agitate either the body of the patient, or his sensitive organ of hearing. All very powerful remedies, as blood-letting, ice, large doses of calomel, caps of blistering plaster over the whole head, and such

like, should be put aside, because they can do no good, but only aggravate the sufferings of the patient.

The blisters on the calves, if such have been applied in a former stage, or, are now ordered in this period of the disease, may, by unguentum basiliconis, or other slight stimulants, be kept discharging in order to obviate the violent convulsions with which the last stage generally comes on ; the other blisters on the upper arm, or the nape of the neck, which had been applied in the stage of inflammation, should be suffered to heal, because in dressing them the patient is much disturbed.

If the practitioner is not called to the patient until effusion has already happened, he should, together with the internal use of the remedies proposed, apply blisters externally, partly to insure a gentle accession of the stage of palsy, and partly to avoid the reproach of inactivity which relatives, or even physicians who are little acquainted with the progress and nature of this disease

would otherwise express. He should choose, for reasons already mentioned, the calves of the legs, as the most convenient place for the blisters, and keep them discharging.

Many physicians, as Dobson, Percival, Aerey, Odier, Mosely, Mier, Formey, Quin, and others give even in this period of the acute hydrocephalus, calomel with the digitalis; and many of them the former, in very large doses, as two, three, four, and even more grains. I have often watched patients to whom, in this stage, great doses of calomel were given, and could perceive no other effect than violent colic pains, which, without the plentiful use of calomel, seldom or never occur in this period of the disease. According to these observations, calomel, in large doses, in this period of the acute hydrocephalus, belongs to those means which only aggravate the sufferings of the hopeless patient. In smaller doses it may be given, even here, as an innocent means of avoiding reproaches.

Excepting blisters, no other external remedies are to be employed; even glysters, by which (it is true) soothing medicines in this moment of the disease can be easier given than by the mouth, should, unless the patient moves much out of his place, be very seldom given, because they make the sufferers more anxious and restless than they are accustomed to be without them.

PALLIATIVE TREATMENT OF THE STAGE OF PALSY.

The medicines which are used in the palliative treatment of the preceding stage are to be continued also in the stage of palsy, if the patient is in a state to swallow them; but as the sufferers almost at every drop which they gulp down with effort, shake violently with the unpalsied hand, and draw their breath quicker, I believe it is more humane, in these moments in which

the patients struggle with death, not to torment them fruitlessly by pouring down medicines.

The caustic ammoniacal baths which, in my earlier years I often employed for the alleviation of the spinal cramp, and the convulsions, but always in vain, are here not advisable, because they stimulate strongly the skin of the patients, greatly increase the febrile disturbance, and by that means aggravate the sufferings of the patients.

At this moment of the acute hydrocephalus, in which neither nutriment nor medicines can be given by the mouth, without exciting convulsive movements in the unpalsied parts, some practical physicians have recommended that they should be given in glysters, but this is fruitless and painful. The nutriment is not digested, and the medicines no longer alleviate the symptoms; but both, when they are retained, distend the rectum by their volume, and torment the dying sufferers.

When there occurs a return of presence of mind, of vision, of speech, of some voluntary movements, of the power of swallowing, and such like, which sometimes happens at that point of time when the stage of effusion passes into that of palsy, as I have formerly mentioned, only slight palliative remedies are to be employed, because, according to my manifold experience, at this period of the disease a radical cure is an impossibility, and strong stimulants only occasion a tumultuous accession of the last stage.

PREVENTION OF THE ACUTE HYDROCEPHALUS.

The prevention of the acute hydrocephalus deserves the greatest attention, because by it this frightful disease, as Baader says, and as I and other physicians, by manifold experience, have learnt, is more

easily prevented than, when it has once broken out, it can be cured. The prophylaxis consists in a suitable diet, in the preservation of perspiration, of the action of the bowels, of the secretion of urine, of the free circulation of blood in all parts of the body, of a good appetite and digestion, in a careful prevention of every thing which can increase the determination of blood towards the head, as violent and frequent movements of the body, agitation of the brain, abuse of spirituous drinks, spiced, heating food, overloading of the stomach, collections in the abdomen, constipation, and such like ; further, in a gradual hardening of the body, by moderate exercise, by gradually leaving off warm clothing, and inuring to all temperatures of weather, but always with regard to the peculiar constitution of the child, to the mode of rearing which has already been employed, and to its age. Constipation should be prevented by gentle, not drastic purgatives, especially by small doses of calomel, mixed with a few grains of rhubarb, or by change of diet. Our forefathers, who cautiously, from time

to time, gave children eccoprotics, may have contributed much to the prevention of this disease; yet I am far from recommending the customary purges at stated times. This great service having preserved their rising race from this destructive disease, seems the most probable cause why some of them seldom, others never in their practical career, had an opportunity of observing it; and why, in their works, they have left behind them so little about it. Elder children should be told the injury of holding their water. I have several times seen when they have been playing with eagerness, or have been confined by their lessons, and have retained their urine long, bad consequences follow. A short time back, a blooming boy, of four years old, who retained his urine many hours in school, was seized with inflammation of the bladder, which was treated with internal stimulants, and which was followed by a sympathetic hydrocephalus, of which he died.

The physician should show the parents

the ill effects which follow tight bandages and dresses ; likewise of immoderate eating, of spirituous drinks, of violent agitation of the body or head ; not to suppress bleedings at the nose, a common and beneficial appearance in larger children ; only to moderate them when very profuse. If a child or grown-up person has in any way been hurt so that this disease is likely to arise, the physician should apply the suitable remedies to prevent its breaking-out, and not wait for the appearance of the symptoms themselves. Blood-lettings, general or local, cold applications to the head, gentle purgatives, especially calomel, cooling emollient medicines, and drinks lukewarm, drawing foot-baths, or other means which appear suitable to the peculiar constitution of the patient, are here in place, and will always be crowned with success if they are properly applied.

Lastly, if the practitioner, when called to his patient, really observes that some morbid appearances have already commenced, but yet from the symptoms cannot determine

with certainty whether they indicate the acute hydrocephalus, or some other disease which resembles it; let him apply those means which are serviceable in the turgescence of the acute hydrocephalus, and can do no harm in any other resembling disease; and let him continue them until he can with certainty determine the diagnosis. The means advised in the preventative treatment may be the best for the attainment of this object.

STATE OF THE BRAIN AFTER DEATH.

Writers in the pathological dissections, which they have made on those who have died of water in the head, speak only in general terms, without stating whether the disease was the hydrocephalic apoplexy, the acute, or the chronic hydrocephalus; as in the statement of the symptoms, they do not mention which indicate the first, which the second, and which the third. Por-

tenschlag (the father), in this, faithfully followed all his predecessors. Willis found the brain soft; Quin and Schwenke, hard. Baillie, in a certain degree elastic; Morgagni, Sommering, and many others, saw the ventricles of the brain more or less distended, and the pineal gland enlarged into a bladder. Ford met with the septum between the lateral ventricles bored through, and the brain compressed by water under its membranes. It is described of various sizes, by Parey, Mier, Stegmann, Wriesberg, as the size of a ball, a hen's egg, an ox's eye. On the contrary, when the effused fluids were collected in the ventricles, the brain, on its external surface, is without any convolutions, the cortical and medullary substance of the same is almost wholly destroyed. Tulpius says, that he has seen the two substances of the brain of the thickness of four folds of paper; and I myself saw twice, in children who had died of chronic hydrocephalus, the brain converted into a sac of water. Morgagni and Ford saw the sutures in the cranium separated; Von Portenschlag (the father)

says, that the sutures were often separated by the collected fluids. That in chronic hydrocephalus, the fluids contained within the cranium, contribute much to thin the substance of the bones, as almost all observers have witnessed, I can corroborate by my own experience.

I found in the water-stroke, the brain commonly firmer than in the acute hydrocephalus; also the blood-vessels of the brain and its membranes less enlarged and less turgid than in the latter; the turgescence of the blood-vessels and the consistence of the brain, I almost always saw in exact relation to the duration of the disease; that is, the shorter the disease, so much the firmer and more consistent was the brain, and so much less enlarged and less turgid were its blood-vessels; and on the contrary, the slower the progress of the disease, so much the softer was the mass of the brain, and so much more enlarged and turgid were its blood-vessels. Even so was it with the elasticy of this viscus; the quicker and earlier this disease oc-

casioned death, so much the more, after the scull-cap was taken off, did the brain rise. Where death did not follow till after four-and-twenty or thirty days, the late Dr. Treber Letl, and I, with others, found the brain without any elasticity, so that when the membranes were peeled off, it flowed like pap. The plexus choroides, with Ludwig, with the Reviewers on Portenschlag's (the father) treatise on hydrocephalus, in the Leipzig Litteratur Zeitung, 1813, and with the above-mentioned Vienna physicians, I always found pale; and in chronic hydrocephalus, disorganized, and in size very much diminished. In those cases of chronic internal hydrocephalus, where I found the brain changed into a bag of water which had the form of a foot-ball, and in which no traces of organization were to be found, four layers could be clearly distinguished; namely, the easily separable pia mater, the cineritious and medullary substances, and another membrane which formed the water-cyst, and was of pretty firm consistence; its enormous cavity was filled with clear inodorous water. The

structure of this cyst was as easily separated from the medullary substance, as the pia mater from the cineritious at the surface, which came in contact with the water-cyst, and was milk-white.

In the sutures of the cranium I never found any change in the water-stroke; in the acute hydrocephalus I found them for the most part a little separated, but often unchanged; and in chronic internal hydrocephalus the bones of the cranium at most points separated. A diminution of the bony mass is here a common appearance. At many points the inner and outer lamellæ of the bones of the cranium are found closely grown together, and often as thin and transparent as oiled writing-paper. The case of Dessesart, and that of Morgagni, where the scull-cap in some places was very thin, and in the latter the right parietal bone drilled through, belonged to the consequences of chronic hydrocephalus; and so also did those cases where the structure of nearly the entire bones of the cranium was wholly, or for the most

part wanting; also schirrhosities, which Petit found in the pituitary gland, belong to the consequences of the slow internal hydrocephalus.

Sometimes, in the ventricles of the brain of those who died with symptoms of the acute hydrocephalus, only a little water, or none, is found. Cheyne, Quin, Warren, mention such cases; and I also found myself equally deceived in three instances, with my late friend Dr. Treber, although we were compelled to suspect, from the symptoms, that a great effusion had happened in the ventricles of the brain. In two of these we found an insignificant quantity of somewhat turbid fluid, but more plastic lymph, by which the ventricles of the brain, and the spaces between the convolutions, were lined as by a membrane of considerable thickness; likewise very great turgescence in the blood-vessels, which, by their volume, like real extravasation, compressed the brain. In the third case, where the water was found in equally small quantity in the cavities of the brain, after taking

away the scull-cap, the mass of the brain expanded so, that after a few minutes, when I attempted to place the part of the cranium which had been sawed off over the brain still contained within its membranes, such was its great bulk it could no longer be contained in it. On further examination I found, as is common, the blood-vessels turgid with blood; but little effused lymph, and in the ventricles of the brain, at the utmost, a table spoonful of water. When I having cut off the hemisphere of the cerebrum, laid it down, there flowed out of the same freely a coloured serum; and when I pressed the rest of the brain gently, there rose, as out of a pressed sponge, a reddish water.

Lanece, Jadelot, and Mongenot, who speak of a knotty substance in the brain. which I never saw in the acute hydrocephalus, remarked this disproportionate size of the brain to the cranium, but never this appearance. Is not this effusion of water in the substance of the brain a hydrocephalus? That this case is very rare appears by

my dissections, and the silence of earlier observers.

The fluids effused into the cranium and cavities of the brain, without any statement by authors, whether they were found in those who died of the water-stroke, of the acute or of the chronic hydrocephalus, were, according to the testimony of these observers, various in colour and quantity. Baillie found the fluid in the ventricles of the brain commonly clear and purer than in other cavities of the body, and in various quantities; Morgagni found it clear, thin, turbid, yellow, green, urine-coloured, brown, yellow, red-yellow, reddish, bloody, puriform, thick; Baader found it mixed with blood; De Haen, Morgagni, Whytt, Wattson, Rowley, Hudson, found it not coagulable; Boerhaave and Haller saw the contrary; Baillie saw these effused fluids sometimes coagulate with acid, sometimes not; on this point the two Wenzels treat in their excellent work circumstantially and diffusely.

Equally various was the quantity of fluid found in examining the cranium and brain of those who died of hydrocephalus: writers state the quantity as from 2 ounces to 13 pounds. Thus, for example, Tulpius found 2, De Haen 3, Monget and Heltamus 8, and Lieutaud 13 pounds of water in the cranium of a patient, who had died of chronic hydrocephalus.

I found in the water-stroke from 2 to 4, or 6 ounces of turbid fluid; in the acute hydrocephalus, for the most part, the same quantity, seldom a greater, and always clear; and in the chronic hydrocephalus 1, 4, 6, even 8 pounds of equally clear fluid. Mathew Sch—r, a boy, eleven years old, had 6, and Eliz. F. who suffered from her birth to her eleventh year, in which she died from chronic hydrocephalus, more than 8 pounds of clear water in the head. In all the others, dead from chronic hydrocephalus, I found a smaller quantity of water; likewise I saw, in all my dissections, in the water-stroke, and in the acute hydrocephalus, as did Morgagni and many others, the choroid

plexus always pale and bloodless, and in chronic internal hydrocephalus, the organization of the brain, for the most part, destroyed.

On this subject Baillie's anatomical remarks are excellent. Hydatids also, I have, with this careful observer in the acute hydrocephalus, had an opportunity of seeing often; in chronic internal hydrocephalus, where all distinction of parts is most commonly destroyed, I have not once found a trace of the same. Little round swellings, which sometimes are hard to the feel, which Baillie says are very rare, I never saw; although I must confess that I was never particularly attentive to it. The water effused in the acute hydrocephalus, I saw with Doctors Treber, Letl, and Adelt, only a few times mixed with blood, but always in those cases only where other diseases, as inflammation, or caries in the ears, and such like, were complicated with it. (Case No. 27.) In the cases of simple acute hydrocephalus, without complication, I never remarked it; the blood therefore must be

considered as poured out during the dissection from wounding the vessels, and mingled with the water. The pituitary gland in the brain, in the acute hydrocephalus, I almost always found in a natural state, only seldom changed into a bladder, or enlarged; in chronic hydrocephalus it appears in the destruction of the whole organization of the brain to be lost, at least I never found it in these cases. With Hopfengartner, I found only in the lungs of the scrofulous, or in those who had formerly suffered from diseases of the lungs, indurations, or commencing suppurations.

CASES

OF

WATER-STROKE, AND OF ACUTE HYDROCEPHALUS.

I.

Charles D——r, a boy eight months old, at the breast, plump and healthy, was let fall, by a young thoughtless maid, down the stairs of the first floor, and she herself fell on the child; both were found lying senseless on the ground; the maid soon recovered, but not so the child. The physician was called to the spot, who ordered immediately warm cataplasms of aromatic herbs with wine, and called a *consilium medico-chirurgicum;* at the same, the wish was expressed that cold applications had been used instead of warm. An extravasation of blood was suspected, and trepanning proposed, but as the parents vehemently protested against it, and as, besides, the seat of the extravasation could

not be determined, it was not performed, and the little patient died in eight-and-forty hours after suffering the concussion, on which a vehement fever, accompanied with convulsions, spinal cramp, and hemiplegia, rapidly followed one another.

DISSECTION.

Marks of a previous bruise on the outside of the head were to be seen, and after taking off the scull-cap we found the blood-vessels of the membranes, and of the brain itself enlarged, turgid with blood, and in the sinuses, particularly in the longitudinal, the serum, lymph, and the red part of the blood distinct from one another, and the two latter swimming in the first. The coagulable lymph resembled an earth-worm; the plexus choroides was pale, and on it sat many little balls of coagulable lymph; the colour of the medullary substance was reddish; the consistence of the brain soft, as it always is when concussion is the cause of the disease; of the supposed extravasation of blood I found nothing. In the ventricles of the brain I met with scarcely a

table-spoonful of turbid serum, but there was a considerable effusion of plastic lymph, which lined the outer surface of the brain, the corpus callosum, and the cavities of the cerebrum and the cerebellum. Lastly, the inner pericranium of the right parietal bone and of the squamous part of the temporal where externally the bruise had been, was greatly inflamed.

II.

A. D. fourteen months old, vaccinated, plump, and strong, one morning about five o'clock, after a restless night was seized with violent fever and general convulsions. These tumultuous symptoms urged the father of this motherless infant to seek immediate assistance for his child, and in less than half an hour after the accession of this high degree of phrenitis, four leeches were applied behind the ears, which drew more than three ounces of blood; calomel, emollient medicines to drink internally, and mustard cataplasms on the feet, soon diminished all the symptoms of the disease. This

improvement however was of short duration, the fever soon increased, the convulsions soon returned, deafness and spinal cramp came on ; hemiplegia, with spasmodic contraction of the pupil, blindness and distortion of the face followed rapidly on one another, and thirteen hours after the accession of the disease, and the employment of proper internal and external remedies, the child died.

DISSECTION.

The cranium, when its coverings, in which the vessels looked forcibly injected, were raised, was of a bluish colour, the sutures were separated, the sinuses contained much coagulated blood, with separate plastic lymph, both of which were surrounded by a pretty considerable quantity of serum ; all the blood-vessels of the brain and its membranes were enlarged and turgid with blood.

On the convolutions, on the corpus callosum, and in the ventricles of the brain, was found like a preternatural membrane,

which lined the walls of these cavities, a great quantity of coagulable lymph, as also at the basis of the cranium ; the pale plexus choroides was covered by the same, and in the ventricles of the brain, the septum of which was broken through, three ounces of turbid serum were found ; the lungs were filled with blood, and the belly somewhat tumid, as the patient, after a considerable quantity of drink and medicines, had passed no stool, and very little urine.

III.

Adelaide G. five months old, vaccinated, brought up without breast-milk, weak, and irritable, suffered for a long time from diarrhæa, which was not cured by the remedies, but which, soon after medicine was left off, suddenly ceased ; but there came on an affection of the head, from which I prognosticated the water-stroke, which, after thirty hours destroyed the child. The physician who attended this little patient, and doubted my diagnosis and prognosis, convinced himself by the dissection, which

disclosed all the appearances which I have described in the first and second cases, that it was the water-stroke.

IV.

Charles F., a child eight months old, well nourished at the breast of his mother, vaccinated, had suffered from dentition and dysentery thirteen days, without the latter being removed by any remedy. On the fourteenth day, the fever, which had accompanied the two other diseases, became very violent; confusion, spinal cramp, convulsions, came on; the urine, which had already been scanty, diminished, and the bowels did not act. Hemiplegia, with frightful distortions of the muscles of the face, blindness, with palsy of the retina, and all the symptoms of the last stage of the acute hydrocephalus, after eight-and-twenty hours, were followed by death.

DISSECTION.

This was denied in the house of the parents, but was effected just before the

interment of the body, and gave the same results as the dissection of cases No. 1 and 2.

V.

Matthew Sch. one year old, healthy, well nourished at his mother's breast, vaccinated, was seized with violent fever, during which, in a few hours, there appeared on the surface of the body many pimples, like wind-pock, which soon burst, and left behind gangrenous places, round which formed a large inflammatory circle, which felt very hard. As these gangrenous points were many in number, and stood so near to one another that their inflammatory circles formed a general inflammation of the skin, with many great and little sloughing ulcers which rapidly extended, and in seven days were three or four times larger than at their commencement, the poor little one was obliged to lie immoveable, as in the acute induration of the cellular substance.

For the fever which had assumed the nervous character, suitable remedies were applied; the gangrenous ulcers were pro-

perly treated; the fever abated, the redness and hardness of the skin vanished, and in the ulcers, which for two days no longer increased in circumference and depth, the sloughs separated from the sound parts, and healthy pus appeared. Full of joy at these happy appearances, I formed to myself a favourable prognosis, but suddenly the suppurating places began to dry, the pulse, which had become a little more feverish, became slow and intermitting, and after two hours passed in a soporose state, there broke out violent convulsions, with spinal cramp and hemiplegia, and the patient died on the eleventh day of the first disease, and on the second of the water-stroke.

DISSECTION.

This could not be done till after three days, out of the house of the parents; much turbid serum, and a very soft consistence of the brain, distinguished this dissection from the preceding, which difference probably depended on the later examination of this organ.

VI.

Augusta F. nine months old, delicate and irritable, had been vaccinated when she was two-and-forty days old. It is remarkable that this child was brought forth by her feeble mother in the middle of the 8th month of pregnancy, during violent symptoms of a nervous inflammation of the lungs, with delirium, and was reared by the milk of a healthy nurse. At her birth an unfavourable prognosis was given about her life and health, yet she grew very much in size and strength. In the fifth month she began sometimes to complain of pain in the belly, and soon afterwards cut her first incisor; at the beginning of the eighth month of her existence she suffered a few days from diarrhœa, which abated with the increase of a cough, which soon manifested all the signs of hooping-cough, and daily became more violent; to this, dentition was added, fever occurred, and six hours after the appearance of the latter there broke out general convulsions and spinal cramp; palsy of the right side followed, while the

left arm and the left leg were outstretched. After twelve hours the patient died; the suitable remedies having been in vain employed under the symptoms of the water-stroke.

DISSECTION.

The blood-vessels of the membranes and of the brain were more turgid than is common in the water-stroke, and the serous extravasation, amounting to two ounces, was less turbid than usual; yet we found no membrane of plastic lymph, which in the acute hydrocephalus lines the ventricles of the brain; but it was seen effused in the wrinkles of the convolutions.

VII.

Elizabeth S. a year old, born of a sickly mother, forty years old, of the Greek religion, but nourished at the breast of a young, healthy, robust nurse, lively, strong, and blooming, was inoculated in the winter with the cow-pock, and the progress of the inoculation was regular. On the twelfth

day of the vaccination there stood on the upper arm four beautiful cow-pocks, and on the same day there occurred fever, which was more vehement than I had remarked in many thousand vaccinations. I attributed this appearance to the accession of dentition, and anticipated nothing bad; but suddenly the bright redness of the inflammatory circle round the pocks vanished; vomiting, soon followed by insensibility occurred; this insensibility, it is true, ceased for a moment, during which the patient furiously bit at every thing which came near her mouth, but there soon appeared spinal cramp, and palsy of the left side, and in eight hours afterwards death. The examination of the body was utterly impracticable, because the grave was watched by the relatives.

VIII.

Joseph Br. six months old, and Edward Fr. seven months old, both blooming infants, nourished at their mothers' breasts, suffered the same fate as the last, during the

period of the inflammation of the cow-pock. Both, without the intervention of dentition, were seized with violent fever, in which they unceasingly screamed for some hours, curving themselves, but without biting, and vomiting in this state their milk and medicines; violent convulsions made them insensible, and with spinal cramp and palsy of the right side, after six-and-thirty hours they expired.

DISSECTION.

In both the results were the same; the turbid serum amounted to between two and three ounces. The substance of the brain was of firmer consistence than in the case No. 4; probably in Elizabeth S. the same appearances which occurred in these children would have been seen, if the superstitious and enraged parents had consented to the opening of the body.

IX.

Christopher C. two years old, healthy, lively, and plump, had never ailed any

thing but the cow-pock ; for his age he displayed much mind. This child, the only joy of his widowed mother, began, after exposure to cold, and drinking a small quantity of mead, to complain of sickness. Indifference to his favourite amusements, want of appetite, languor, pain of the head, a furred tongue, a tumid belly, scanty urine, a rare and unnatural evacuation by stool, and a dry skin, were the symptoms which the physician who was called stated himself to have remarked, and explained as the consequence of difficult dentition. Decoction of mallow, with acetate of ammonia, and syrup of mallow, was ordered, and a favourable prognosis given. In the meanwhile the above symptoms began to grow worse, especially the head-ache, and the mother affirmed that she had already observed convulsive movements in the eyes. On the 8th day of the disease, when I was called, I found the patient in a state which I recognized as the third stage of the acute hydrocephalus. As all the symptoms which indicate the period of effusion were present, I made a prognosis exactly the reverse of

the other physician, and pronounced the patient to be lost. In consultation with other physicians, contrary to my opinion, the radical cure was undertaken, by blood-letting, ice to the head, blisters, glysters; and internally, with emollients and acetate of ammonia, calomel was given in doses of one grain; a remarkable relief to the symptoms followed, and before the transition into the stage of palsy, perfect consciousness, sight, and speech returned; but circumstances soon changed for the worse; the frightful stage of palsy began, and before six-and-thirty hours had passed, this lovely child expired.

DISSECTION.

After removing the scull-cap, the vessels of the membranes, and of the brain, were less full of blood than usual. Yet there was coagulated lymph in great quantities, and particularly thick in the convolutions and the whole upper surface of the cerebrum and cerebellum; even the ventricles of the brain, the corpus callosum, the corpora striata, were coated in their upper

surface with a formed membrane of coagulable lymph, an appearance which, in my numerous dissections, I never saw so distinctly as here: the quantity of water contained in the ventricles, was between three and four ounces; the brain was soft, the pituitary gland natural, the pale plexus choroides covered with lymph, the sutures of the cranium were separated; between their indentations was found, in very small quantity, a fluid mixed with blood, through which the projecting bones could be distinguished, just as on maps the boundaries of two neighbouring countries are marked with coloured points. The lungs were full of blood; the belly was, as in all who die of this disease, quite fallen in, and on none of its viscera was any morbid appearance to be remarked.

X.

Anthony D., four years old and vaccinated, was seized in October with rheumatic inflammatory fever, and local inflammation of the velum pendulum, the uvula

and tonsils; his mother, in hopes of his becoming better, suffered him to lie seven days without medicine, or the necessary regimen, and for the first time on the eighth day of the disease, sought for aid at the Institute for sick children. The patient was treated antiphlogistically with internal and external remedies; but on the same day on which he began to take medicine, he began to complain of pains of the head, in the forehead and occiput, and of inclination to vomit, followed by actual vomiting; his pulse, which hitherto was febrile, became slow, intermitting, and irregular; to these pathognomic signs of the second stage of the acute hydrocephalus, there soon followed the other symptoms, indicating this period of the disease. All the remedies, internal and external, which I have recommended to be applied in the period of inflammation, were used methodically, and in proper quantity, but without the wished-for effect, and after twelve hours, the symptoms of the third stage appeared. After six days, there was a return of consciousness, sight, and speech;

but after suffering thirty-six hours the symptoms of the last stage, the patient expired.

DISSECTION.

Excepting some traces of inflammation in the periosteum of the petrus portion of the temporal bone, and of the sphenoid bone, and the brain being very soft, all other appearances were the same which I have always found in dissections of this kind; likewise the parts of the throat which had been inflamed were still much so, and in many parts covered with coagulable lymph.

XI.

Josepha S. eight months old, inoculated with the cow-pock, was, in the month of October with a tertian fever, and with the gout! brought to the Institute for sick children. For half a year, according to the mother's statement, this child had suffered with the latter disease, and for fourteen days with the former; both seem to have been caused by a cold damp dwelling, and bad food. To these

two diseases were now added, measles, with œdema of the feet and hands, on which the intermittent and gouty pains vanished; but on the eighth day after the eruption of the measles, which orderly and rightly advanced, and when the patient had already begun to recover, there suddenly came on a violent fever followed by general convulsions. From these and the other symptoms which I observed, the stage of inflammation was with certainty detected; but the antiphlogistic, counter-irritant, and depleting remedies were employed with relation to the constitution of the infant not so exactly and rapidly as I could have wished, and without any improvement; effusion took place, on the third day followed palsy, and a few days afterwards, death.

DISSECTION.

The brain was so soft, that after peeling off the membranes, it flowed like thick pap, and much water, which was contained in the ventricles of the brain, ran out. The sutures of the cranium were firmly closed. According to the statement of the mother,

this child had, ever since she remembered, betrayed little faculty of mind, never been cheerful, never properly digested, but vomited daily, and never grown as it ought to have done; hence it may with much probability be suspected, that previously, a collection of water had existed in the ventricles of the brain.

XII.

Antonia E., four years old, in the first year of her age vaccinated; a few months after the innoculation, she began to suffer scrofula of the glands from improper management of the quantity and quality of her food. Under the suitable treatment which was employed for this disease, the child wasted more and more every day, and the belly increased in circumference, with much fever. In the early part of November, after this poor child had already suffered more than three months, her former good temper disappeared, her sleep became disturbed, she complained of head-ache about the forehead and temples, vomited her food

undigested, and her medicines, and all the symptoms of the second stage of the acute hydrocephalus appeared; only the pulse remained natural, not intermitting. Bloodletting in this case was not to be thought of; emollients with calomel, which had already been given for the glandular disease of the abdomen, were carefully administered, but without the slightest good effect; even six or eight grains of calomel in the twenty-four hours were not sufficient to procure one stool, but a stimulating saline glyster produced a firm evacuation. The symptoms of effusion crept on, and the tumid belly, in spite of its hardness and constipation, sunk in; soon followed palsy without spinal cramp, and without convulsive movements of the muscles of the face or of the eyes, the pupils of which were very much dilated, and the little sufferer gently expired on the seventeenth day after the first sign had been remarked of affection of the head.

DISSECTION.

The opening of the head could not be effected till four days after death. The results were, fulness of the blood-vessels,

a soft brain, a little coagulable lymph, about five ounces of water in the ventricles of the brain, the plexus choroides very pale, and almost changed into mucus, the sutures of the cranium firmly closed.

XIII.

Barbara D., five years old, weak and irritable from birth, vaccinated very young, of a pale complexion, but otherwise active and full of talent, was by powerful internal and external remedies saved from death, when a few months old, according to the statement of the physician who attended her, but she was born at that unlucky period when the theory of excitement by over-stimulating did so much harm. This child was chiefly brought up in the country, where, under a suitable diet, she grew fast, but had always a large belly. In the month of January, she fell ill with a gastric-rheumatic fever, which was soon cured with the usual remedies; but there remained after this disease distinct traces of that visconia which the child had formerly. In convalescence she recovered very slowly,

and fourteen days after the above-mentioned disease had passed over, she began to complain of great languor, head and belly-ache, lost her appetite again, had a furred tongue, nausea and vomiting of half-digested food, with tough slime; the sensibility of the eyes was very great, the features altered, but the pulse remained in its natural state. A medical consultation was called, in which those were comprehended who had attended this child at the earliest period of her life. The remedies proposed were, internal strengthening medicines, and externally baths impregnated with herbs and wine. After the first baths and internal stimulants the patient seemed better; but after the second bath the stage of inflammation developed itself distinctly. The previous medicines, and the baths, were now left off, and the radical plan of treatment for the inflammatory period of the acute hydrocephalus pursued, but all in vain. Effusion quickly followed, to which, after five days' paralysis, with its consequences, succeeded, in which state she lived full four days, and then gently expired.

DISSECTION.

The results were exactly the same as in case 12.

XIV.

Wilhelmina H., five years old, vaccinated, delicate, irritable, full of talent and good temper, after having suffered, two months before, a blow on the head, fell ill, with symptoms of a catarrhal-gastric fever; after a few days, there succeeded signs of affection of the head, and soon were developed the especial symptoms which mark the inflammatory period of our disease, without our being able to distinguish from the gastric-catarrhal state the symptoms of turgescence. All the most effectual remedies for the inflammatory period were fruitless, and effusion followed. Before the transition into the last period of the disease, there returned consciousness, speech, sight, voluntary movement of the hands and feet, thirst and appetite; the patient slept calmly, and for a long time, woke collected out of her

sleep ; her pulse was natural, she complained only of languor, but of no pain. These appearances made even me inclined to hope and to believe that, perhaps, in the two last periods of the acute hydrocephalus recovery was not impossible, and with joy I believed that my gloomy prognosis, which I had made, would be this time contradicted, but in vain ; after 26 hours the stage of palsy began, without spinal cramp, and, under the gentlest symptoms, this amiable child, the only hope and joy of its parents, expired on the eighteenth day of the disease. As the results in the examination were the same which were found in all who died of this disease, without any difference, a circumstantial description of them would be superfluous.

XV.

Josepha E., eighteen months old, vaccinated, was, on the 16th of April, for the first time, brought to the Institute for Sick Children. It appeared that this child, for the last month, had suffered from diarrhœa,

and for the last year from rickets, and from glandular disease of the abdomen, with which she still suffered. The diarrhœa was relieved by columba and mucilages, and for the latter I employed afterwards, with the best effects, calomel, morning and evening, to half a grain, and the pulvis anti-hecticoscrofulosus twice a-day, six grains, with powdered liquorice. Already I reckoned this child among the convalescents, when it was found to be affected with the indistinctest symptoms of the acute hydrocephalus, which indicated the period of turgescence passing into the stage of inflammation; to these symptoms those of the inflammatory period followed with violence, and did not yield to the remedies employed. Six full days the patient lay in an irrecoverable state of insensibility; palsy followed, in which period, under the gentlest symptoms of the disease, after three days, she quietly expired.

DISSECTION.

It was distinguished from all other dissections in this disease by this, that between the

pia mater and the brain a quantity of coagulable lymph was met with; the brain was very soft; in the ventricles was found much water, and the plexus choroides, together with the pituitary gland, could not be discovered in the pap-like mass of brain.

XVI.

Ignatius Von B., four years old, at eight months old vaccinated, healthy, very lively, climbing up every thing, meeting with frequent falls, suffering often in his stomach, and taking from his father fermented drinks. When this child, three weeks before he was seized with his last disease suffered with a fever from foul bowels, I remarked already in the progress of this fever symptoms of turgescence in the head; I advised the careful mother of this child to be on the watch about his health; I forbad the use of fermented drinks, and warned her against overloading the stomach, and agitating the head. In spite of this, these faults were all committed; they took the child to an abundant table, at which he eat immode-

rately, was excited with champagne and other wines, after which he vomited his food in great quantity, and had a violent fever, with general convulsions. With these manifest signs of encephalitis the physician who was called ordered heating medicines, and infusion of valerian, with tincture of castor, spirits of hartshorn, and Sydenham's liquid laudanum, in large doses. The diminution of the convulsions, which, without these means, would soon have taken place, was ascribed to them. After the nervous symptoms abated, they began to enquire into the state of the abdominal viscera, and into the exciting causes of this violent febrile attack. No attention was paid to the head. Eight-and-forty hours after the breaking out of the disease the patient was brought into town, and there again, for two days, was given up to an unskilful surgeon, who employed the same unsuitable medicines as the country surgeon : lastly, I, as the old family physician, was called ; from the preceding, and still present symptoms, I stated the disease to be the acute hydrocephalus, in the

stage of inflammation. Leeches to the head, blisters and glysters were applied; emollients and calomel were given, and a striking diminution of the most violent symptoms, particularly of pain of the head, followed for some hours, but they soon returned with greater violence, the local blood-lettings were repeated, and the rest of the treatment continued with great diminution of the painful head-ache, and of the vomiting. On the third day of my attendance, with all the symptoms indicating the stage of inflammation still present, which had again, during the night, become aggravated, when I urged the continuation of the antiphlogistic treatment, internal and external evacuants and counter-irritants, I was removed from the attendance of this child, because I resisted the use of bark, which had been proposed by the surgeon. No *consilium medicum* of experienced physicians, as I expressly wished, was called; the charlatan, who for two days, when recovery was possible, had wasted time with useless medicines, as emulsion of gum-arabic with rhu-

barb, and who laboured to convince the good parents that an acute hyrocephalus did not exist, that my diagnosis was false, and my prognosis ridiculous, gained the confidence of the family, and the further treatment of the patient was entrusted to him. The Peruvian bark was given, and recovery was prophesied within ten days; the stage of effusion was viewed by this experienced man as a refreshing slumber, and the frightful symptoms which accompanied the stage of palsy he explained as a state of great debility, which he promised to remove by large doses of volatile stimulants; yet, nevertheless, the patient died in a few days, under the treatment of this man of wonders.

DISSECTION.

The opening of the body, which was performed by two physicians and two surgeons, verified my diagnosis perfectly. After removing the scalp, the cranium appeared in many parts dark-blue, from the turgid blood-vessels; in the sutures, which were a little open, appeared blood; the vessels

of the membranes and the brain, after sawing off the bones, appeared very much enlarged, and in a high degree filled with blood; the sinuses, particularly the longitudinal, were full of coagulated blood, and coagulated lymph swam in the serum. In the ventricles were more than four ounces of clear water; the plexus choroides was very pale, and the walls of the ventricles lined with plastic lymph; the consistence of the brain was pretty firm; it expanded after taking off the cranium to such a degree, that a few minutes afterwards it could not be brought under the scull cap; at the basis of the cranium lay much coagulated lymph, which enveloped nerves and blood-vessels; the lungs were much infiltrated with blood. In the pericardium was found somewhat more water than usual; the liver and all the abdominal viscera were in their natural state.

XVII.

Edward Gr. von M., four years old, vaccinated when very young, began in his

second year to suffer from general scrofula, from which there followed, first on the foot, next on the outer ancle of the right leg, a swelling, which inflamed and passed into suppuration. The most efficacious remedies, as well for the general struma as for these local diseases were in vain applied: the patient at the end of April was taken into the country, where, under the use of the medicines that were prescribed, and the regimen that was directed, he improved remarkably. The ulcer on the leg, which yielded good pus, and suppurated profusely, suddenly ceased to discharge without any known cause, and his good appetite and active disposition left him. Stimulants were immediately applied to the ulcer to make it discharge again, but without the wished-for effect; all the signs of turgescence towards the head appeared; they did not yield to the remedies employed; a tumultuous accession of the period of imflammation followed; no means were able to stop the effusion. Before the transition into the last period of the disease, there recurred in this patient consciousness,

speech, sight, the power of swallowing fluids, and appetite, on which appearances the attending physician gave the inconsolable mother the vain hope that her darling would recover; but this happy state was of short duration; violent spinal cramp, and palsy, preceded approaching death, which followed on the seventeenth day of the disease.

DISSECTION.

The appearances were the same as in the foregoing cases.

XVIII.

Joseph P., one year old, vaccinated in the fourth month of his age, well nourished by his mother's milk, had about the whole of his fat neck little ulcers, which in its deep furrows profusely suppurated. Emollient baths with milk, and internally, tea of the jacea tricolori were employed with good effect. From impatience at the slow progress of the disease, remedies were applied without the knowledge of the physician

which rapidly dried up the ulcers. Scarcely eight days after the drying up of these little ulcers, the child lost his activity and appetite, slept uncomfortably, began to hang his head, to dislike strong light, became constipated and passed little urine. All these appearances were attributed to dentition, and no physician was consulted. Medical assistance was not called till all the symptoms which indicate the inflammatory period were present, and effusion was already near, which could no longer be prevented. With violent convulsions and spinal cramp the stage of palsy began, and on the fifteenth day of the disease, death followed.

DISSECTION.

This could not be performed till three days afterwards: the brain was in part very soft: as for the rest, the dissection gave the same results as the sixteenth case.

XIX.

Anne Z., eight years old, very healthy, fell from three feet high, with her head

upon the ground. To avoid a scolding for her carelessness, she kept this accident a secret from her mother. Six weeks afterwards there arose the first symptoms of hydrocephalic turgescence, which were soon followed by nausea, coated tongue, and vomiting. A hot forehead, severe pain in the head and nape of the neck alternating with pain of the stomach, and great sensibility of the eyes, were the most striking signs of the disease. The physician who was first called, and seemed to be little acquainted with the frequency of the acute hydrocephalus, explained these appearances to be the symptoms of a gastric fever, and directed his attention merely to the abdomen, without paying any attention to the head; he said that the inclination to vomit was a hint of nature, that the head-ache was a sympathetic pain, of which the cause lay in the stomach; the coated tongue served to corroborate his view, and determine him to give an emetic. After this had operated, the symptoms of effusion soon appeared, which

he explained as those of a typhoid fever, and for that reason applied strong internal and external stimulants. The symptoms of the last stage were in this case, as they always are where strong stimulants are employed in large doses in the early moments of the disease very violent. Death followed on the eighteenth day.

DISSECTION.

After taking off the general covering of the head, the cranium looked blue, the sutures were here and there separated, and a watery blood appeared beneath ; the vessels of the dura mater, and those of the other membranes and the brain, were much enlarged and over full of blood. In the sinuses swam the red part of the blood, and the coagulated lymph was transformed into the shape of a worm in the serum ; likewise the coagulated lymph appeared in great quantity as a preternatural membrane in the ventricles on the corpus callosum, and at the basis of the cranium. The quantity of clear water contained in the

ventricles was six ounces; the viscera of the thorax and abdomen were perfectly healthy.

XX.

Henry A., four years old, vaccinated, strong, lively, and well nourished, heated himself by violent running in a spacious garden. Covered with perspiration he sat down with bare head and breast, and back covered only with his shirt, in a pouring rain, till he was wet through. The next morning he complained of weight in the head, tension at the nape of the neck, transient, lancinating pains in the forehead, feebleness, absence of thirst and appetite, and slight fever, in which, however, the pulse was at the natural quickness and fullness; yet I already remarked irregularity in the beats, as some were hardly to be felt and others were omitted. He was constipated, had scanty though natural urine, the skin was dry to the feel. My first care was to restore perspiration, from which I expected much good. In the second night

after this exposure to cold, the fever became greater, and, at the same time, the above-mentioned symptoms more violent; a remarkable remission of the fever followed towards noon of the third day. Emollentia, with radix sambuci, and ammonia acetata with syrup, were the medicines which he took; and mustard cataplasms to the feet, and glysters, which operated, were the external remedies which I employed. I expressed to the parents of the child, my fear of the acute hydrocephalus, and proposed blood-letting, at which they were more terrified than at the danger to which their child was exposed, because a surgeon, a stiff Brunonian without principles, had related some horrible stories about blood-letting, and prophesied the worst consequences. In a *consilium* with a learned physician and this surgeon, the disease was stated to be an intermittent fever, because at this time intermittents reigned epidemically in and about Vienna, and in spite of my remonstrances, Peruvian bark was ordered, which the parents with great readiness administered to their child. But the results verified my prognosis;

for the inflammatory period with severe pains in the head, and all the symptoms which accompany this stage of acute hydrocephalus, shewed themselves. A second *consilium* with true practical physicians, attached to no system, and intimately acquainted with this form of disease, was now called, but too late. All the means employed which earlier would certainly have hindered the effusion, were no longer capable of arresting the progress of the disease. Insensibility came on, followed after six days by palsy with the most violent symptoms, and at the end of eight-and-forty days from that time, his sufferings ended.

DISSECTION.

This was attended by the physician who in the first consultation proposed the bark, and was performed by the surgeon. The blood-vessels of the covering of the cranium were turgid; the bared bones of the cranium were blue, the sutures were separated from one another by a line, and the interval was filled by a bloody extravasation. The blood vessels of the membranes and

of the brain itself were uncommonly large, and turgid with blood, as were also the sinuses, in which cruor and much lymph floated in the serum. Between the pia mater and the brain, which was firm and elastic, I met with much coagulable lymph. On the corpus callosum lay the same, about as thick as the back of a knife ; and equally thick, at the basis of the cranium, where it enveloped the vessels and nerves. The ventricles, in which more than six ounces of clear water were contained, were lined by the same, through all their length and incurvations. The plexus choroides was very pale, and wholly covered with lymph. The pituitary gland was in its natural state, but covered with lymph ; the septum of the ventricles was broken through ; the white substance of the brain was of a reddish colour ; the viscera of the thorax and abdomen were perfectly healthy. The incredulous physician began, after this, to believe in the acute hydrocephalus. Whether the surgeon, who soon after went to Russia, was converted, I know not.

XXI.

Francis R. four year sold, after an inflammation of the lungs, succeeded by a spasmodic cough, having perfectly recovered his health and strength, fell out of a cart, two or three feet high, with his head upon the stone pavement. Cold water was applied to the bruised place, and fearless of any worse consequences, neither physician nor surgeon was consulted. About five weeks after this fall, the little patient began to complain of many symptoms of turgescence towards the head, which were attributed by the mother to dentition. Thus it was not till violent head-ach, vomiting, and other symptoms which indicate the presence of local inflammation in the cranium, appeared, that I was sent for. At the first visit, after taking all things into the account, I made an unfavourable prognosis, and wished the opinion of some other physician should be taken, to which the parents consented, not till after two days, when effusion had already happened. Even now my diagnosis was not agreed to; the disease was stated to be a nervous

fever, and my treatment of the patient with antiphlogistic remedies was considered improper. The gentle palliatives which I had already employed, as infusion of valerian, with spirits of hartshorn, and syrup of diacodium; likewise, as a drink, decoction of mallow, with which four grains of digitalis was infused, were equally far from receiving the approval of my colleagues. The former were exchanged for stimulants, the latter were wholly omitted. Two days after the child had taken snake-root, polygala senegæ, æther vitriolicus, tinctura anodyna, and blisters had been applied to five places, there succeeded frightful convulsions, spasm of the muscles of the back, palsy of the right side; in short, all the appearances of the last period of acute hydrocephalus, which I had here distinctly prognosticated, and after eighteen hours from the commencement of the convulsions, and on the 17th day of the disease, death ensued.

DISSECTION.

With this my colleagues, who had taken hydrocephalus for a phantom of my brain,

were charged. The results were the same as in case No. 20. After the examination was ended, they assured the father, at my desire, that the disease had been really the acute hydrocephalus.

XXII.

Theresa N., two years old, vaccinated, was in the first months of her life ricketty; suffered, when eighteen months old, for three weeks, with mucous fever, (infantile remitting fever), and cut her teeth with much irritation. This girl, at the commencement of September, began to complain of the symptoms of hydrocephalic turgescence. The mother, in the opinion that all these morbid appearances depended on the advance of fresh teeth allowed the disease to advance, and did not request medical advice till the end of the inflammatory period, and effusion had actually begun. That penetrating physician, Letl, made a bad prognosis, which was but too soon fulfilled. This child, before the accession of palsy, enjoyed a lucid interval, but died on the 18th day of the disease.

DISSECTION.

This was performed in presence of the parents, and four physicians. The bones of the cranium were bluish, and separated, and there was effusion between the sutures. The substance of the brain expanded but little, and was not elastic. The blood-vessels of the membranes appeared more turgid than those of the brain. The water in the ventricles weighed six ounces. The extravasation of lymph was insignificant. The substance of the brain was softer than is common when death takes place on the 18th day. The choroid plexus was very pale, and surrounded by a little lymph. The pituitary gland was natural, and at the basis of the cranium I found much coagulated lymph.

XXIII.

Anthony I., four years old, vaccinated, weakly, with all the signs of a watery head; he saw indistinctly, betrayed slight mental faculties, stumbled in walking, was very pale, hung his head, and appeared indif-

ferent to play-things, parents, and relatives. Nothing could move him to the expression of joy, but he never complained of pain. In the month of November, his mother remarked a striking change in him; he became morose, wept at every trifle, and complained loudly of head-ache. Dr. Treber, the family physician, at his first visit, found the symptoms of the second stage of the acute hydrocephalus. He proposed the treatment indicated for this period of the disease, yet without blood-letting, but in vain. The symptoms of effusion advanced, and the patient died on the 14th day after that change in his state, with the gentlest symptoms of paralysis.

DISSECTION.

This differed from the former dissections in the firmness of the sutures, the softness of the brain, the great enlargement of the ventricles, the great quantity of water, the slight extravasation of lymph, and in the pituitary gland being converted into a bladder; the choroid plexus appeared changed into mucus.

XXIV.

Caroline Von R., two years old, vaccinated, healthy, had the scarlet fever at that time when I lost many patients in this disease. It was the 4th day after the eruption. I left her in the evening about eight o'clock, going on well, and hoped she would have a good night. After midnight the child became pale, violent fever, accompanied by convulsions, appeared; spasm of the muscles of the back, with palsy of the right side, followed, and in ten hours she was dead. In a way exactly similar we lost here in Vienna, many years back, a number of hopeful children during the mildest and most regular progress of scarlet fever, from the water-stroke.

The dissection of this child, and of all those who died under the same circumstances, gave the same results with scarcely a perceptible difference, as the cases from No. 1. to No. 9.

XXV.

Francis F. four years old, had many beautiful and natural small-pox pustules, the progress of which, up to the period of desiccation, was regular. On the 18th day the child suddenly became speechless, shewed an inclination to vomit, fell into convulsions, became lame on the right side, and died after fourteen hours, under vehement spasms of the muscles of the back.

DISSECTION.

Beside the appearances found in the first nine cases, there was between the pia mater and the brain a quantity of fluid which appeared to be a mixture of small-pox pus and serum.

XXVI.

Anna Maria Sch—, twelve years old, vaccinated, suffered for many years with scald-head, for which many powerful remedies were employed with more or less effect. The places under the thick crusts, which discharged and spread, began sud-

denly to dry, and the patient felt all the uneasiness of a turgescence in the head. As in the first stage of this disease, no assistance was sought for, and in the following it was too late, the effusion began, attended by all the symptoms which indicate this period of the acute hydrocephalus. This stage of the disease lasted a long time, and the sufferer had many very distinct intervals, in which she recovered consciousness, speech, and sight. Under suitable palliatives, the symptoms of the last stage slowly approached, and death did not follow till the 30th day of the disease.

DISSECTION.

The external vessels of the cranium, like those of the brain and its membranes, were not very turgid. The colour of the bones of the cranium, the sutures of which were firmly closed, appeared blue. The substance of the brain was very soft. The ventricles large, and containing much water. Plastic lymph was remarked in great quantity, only on the under-surface of the brain, and on the basis of the cranium. The

pineal gland resembled a bladder. The choroid plexus was almost destroyed, and bloodless.

XXVII.

Anthony P. seven years old, vaccinated, scrofulous, suffered a long time with a discharge from the right ear, of very offensive smell. As much for this local, as for the general scrofulous complaint, the prescribed medicines were regularly given him by his mother. After an attack of fever, with severe pain of the side, the discharge from the ear vanished, but there soon showed themselves, although with little distinctness, the symptoms of hydrocephalic turgescence. Over the ear which had formerly discharged, but now was violently painful and inflamed, emollient cataplasms were applied, mild almond oil was dropped in, and all the remedies proposed for the stage of inflammation were applied with punctuality, but in vain. The disease ran through the two last stages, and on the fifteenth day death followed.

DISSECTION.

Beside the common appearances, the periosteum of the ear was inflamed, this inflammation extended to the basis of the cranium into the periosteum of the petrous portion of the temporal bone, and over, and around the same. Between the membranes of the brain was found a very great quantity of thin puriform fluid, forming a *hydropem purulentum meningeum*, and in the cavities of the brain, which was neither firm nor elastic, were between four and five ounces of clear pure water mixed with blood.

XXVIII.

Anna W——, six years old, vaccinated, suffered a violent concussion of the head; a few days after which, there appeared inclination to sleep, a dullness of senses, moroseness, and soon afterwards a fever, with many nervous symptoms. The disease appeared to be a simple nervous fever; after seven or eight days, there formed on both sides of the parotid glands, great

swellings, which, particularly on the right side, continued to increase, show distinct signs of suppuration, and the right ear began to discharge profusely. All the indications to opening the abscess were present, but the night before Dr. Letl intended to do it, it vanished entirely, the discharge from the ear ceased, and the head which, during the existence of the abscess, was so free from complaint, that the little maid could sit up, amuse herself with her play-things, and ate with appetite, became confused; all the symptoms of the second stage of the acute hydrocephalus, combined with those of the third, suddenly appeared, and the physician, who, by an incision into the parotids expected to have cured his patient, found her in the morning in a hopeless state. The progress of effusion took place rapidly, and paralysis, and on the thirty-second day of the disease, reckoning in the time free from head affection, death followed.

DISSECTION.

A filthy confined chamber, the excessive

uncleanliness of the parents in the care of the child, its head unwashed for months, its long clammy hair, with countless vermin, made this dissection, as nothing was at hand to clean the body, one of the most disgusting; but even as important were the appearances which it disclosed. The cranium was in its natural state, unchanged in colour and size; scarcely had the first teeth of the saw penetrated the bone when there flowed out pus of an intolerable stench When we had sawed away the upper half of the cranium, and released it from the dura mater, we saw that the pus was chiefly collected in the neighbourhood of the petrous portion of the right temporal bone, where also the dura mater, to the size of a small coin, was destroyed. After we had removed the dura matter, we could at no point discover the substance of the brain; all was enveloped in pus, which filled the smallest and the deepest convolutions, and appeared to have destroyed the whole pia mater. In the neighbourhood of the temporal bone were found many ounces of this puriform stinking fluid; a still greater quantity had

sunk into the under-part of the cranium. The medullary substance of the brain was dissolved and without elasticity ; the origin of the nervous pairs was surrounded with pus. Lastly, there were found in the ventricles between eight and ten ounces of pure water ; but on the walls of the same, little plastic lymph ; the choroid plexus was pale, nearly dissolved ; the pituitary gland was in its natural state. As there was an entire want of all convenience, and even of water, and as the obstinacy of the parents would not permit, what they called a mangling of their child, we were unable satisfactorily to examine the cranium, particularly in the neighbourhood of the ears, and were obliged to satisfy ourselves with these observations, which had been purchased by the illness of one of us, and the sickness of the other, and leave the body imperfectly examined.

XXIX.

Matthew Sch—r, three years and a half old, healthy, well-nourished, strong, after passing through the measles and small-pox, suffered,

by falling over a table, a violent agitation of the brain. Immediately the mother of this child requested the advice of the late Dr. Treber. The proper internal and external remedies for the turgescence and commencing local inflammation, were employed, but not with the best effect; for though the acute symptoms of inflammation were removed, his former activity and vivacity did not return. Giddiness, dim sight, disposition to anger, difficulty in walking, hanging of the head, remained; imbecillity, palsy of the lower limbs followed; and even the sutures of the firmly-closed bones of the cranium yielded. In proportion to the diminution of his powers of mind, there was an increase in the circumference of his body; his customary appetite changed to voracity, and he devoured three or four times the quantity of the most indigestible food. In this state of mere vegetation, he was attacked with scarlatina, on which supervened the acute anasarca and hydrothorax, from which he was as happily saved as from

the fever. With the developement of chronic hydrocephalus, the size of his body advanced quicker than before the two above-mentioned diseases; he moved with difficulty, became daily larger; blindness, and palsy of the hands followed, stools and urine passed unconsciously, and in the eleventh year of his miserable life, he was removed by death.

DISSECTION.

All the sutures of the cranium, which in many places were excessively thin, were separated; after removing the top of the cranium, the brain fluctuated under the dura mater, like the belly in ascites, and excepting the dura mater, no trace was found of the two other membranes. The cineritious substance in which nothing organic was remarked, lay on the medullary like a thin inseparable layer; both substances represented a foot-ball filled with fluid, in whose centre was found a membranous sac constructed of a preternatural membrane, in which more than three pounds of pure

clear water were contained. This sac was prolonged through all the vertebræ down to the sacrum, and round the outer surface of this membranous canal was remarked a thin layer of spinal marrow, adhering to it. The cavity of the spinal marrow was so dilated, that the thumb of a large man hardly filled it. The water sac, formed of preternatural membrane, easily separated from the medullary layer of the brain. The outer surface of the sac was as smooth as the surface of the medullary substance to which it was annexed. This surface was soft, and white; in the neighbourhood of the medulla oblongata was remarked a cineritious bundle of infinitely fine threads, which rising were distributed and lost on the vault of the ball. Of the choroid plexus, of the pituitary gland, or of any other organization of the brain, there was not the least to be seen, nor was the longitudinal sinus to be found.

XXX.

Nathan U., after a concussion of the brain, and being intoxicated, was overtaken by symptoms of the acute hydrocephalus. After a short continuance of the symptoms of turgescence the stage of inflammation succeeded tumultuously. The physician, who was called immediately, recognised the inflammatory state in which the contents of the cranium were, and very judiciously applied the suitable internal and external remedies, by which the violent symptoms were lessened; but the head-ache, which often made the patient cry out loud, would not yield. The boy was seven years old, healthy, blooming, and the only joy of his parents. When I was called, on the fourth day, I found, besides his violent periodically returning pains of the head, during which he wrinkled his forehead, and assumed a threatening expression, already many symptoms which indicated the stage of effusion. With the physician in ordinary, I made a very un-

favourable prognosis; but the antiphlogistic remedies were ordered to be continued until the violent symptoms should subside. The patient sunk into a state of great weakness, to all appearance hopeless. The physician employed the gently stimulating and strengthening medicines, which I have recommended for the after-cure, beginning cautiously, and the patient perfectly recovered. The same was the case with a girl fifteen months old, which the mother dropped out of her arms, with the head upon the ground. It was treated antiphlogistically, with large bleedings by leeches on the head, and with calomel, by the same physician. Here too, I was consulted. We both gave an unfavourable prognosis, as many symptoms of effusion were present, and consequently, there was little room to hope for a favourable termination of the disease, but this little patient likewise recovered under the same physician, and the same plan of treatment.

XXXI.

A. K. Gr. von Sch., four years old, healthy and lively, fell, eighteen months back, from a height of three feet, with the head on a hard board, wounded himself in the nape of the neck, with a broken piece of a china-pot, (which, in his fall, he threw upon the ground,) and lost from the wound a considerable quantity of blood; he soon recovered, but his good temper, and docility, changed to a stubbornness, bordering on viciousness. The lids of the right eye were always swollen, the eye itself appeared to be deeper in the head, and smaller than the left; his gait was without steadiness, stumbling; appetite, digestion, and the whole remaining habit of the little patient underwent no change. This first-born of a noble family was, in the winter months, attacked with the croup, for which, at the proper time, the most suitable remedies were applied by two amiable and estimable physicians. After twelve hours from the beginning of this disease, the symptoms of

the croup suddenly vanished; turgescence of the head appeared, and soon after, the symptoms of inflammation of the brain, and the patient died the next day under the symptoms of the water-stroke.

DISSECTION.

This discovered the traces of violent turgescence and inflammation in the contents of the cranium. Lymph was found in considerable quantity at the basis of the cranium, but little on the corpus callosum, in the ventricles, and in other parts; but no water in the cavities of the brain. Instead of this, in the right ventricle were extravasated blood, and an unorganized oviform growth of the size of a pigeon's egg, which weighed two ounces, and appeared to be indurated lymph covered over with blood; the latter had probably its origin from the fall, and was the cause of his change of character, and the former produced the symptoms of the water-stroke.

XXXII.

Charles Gerold, four years old son to the publisher of this treatise, was, in the month of December, attacked with scarlet fever; the eruption was mixed with a miliary eruption, yet the progress of the disease was mild, regular, and benign, and already, on the seventh day, no fever was to be remarked. Not so happily did it go on after the scarlet fever. No desiccation was to be remarked, and on the third day after the termination of the eruption, the left parotid gland began to swell and grow hard, and the face, hands, and feet, to become œdematous. The appetite lessened with the urine, and stools could be procured only by glysters or purgatives, and all diuretics were taken without effect. Weariness and inactivity increased every hour, and ten days after the scarlet fever was over, there appeared giddiness, confusion of mind, increased sensibility of the eyes, and warmth of the head, nausea, vomiting of every thing which he took, with aggravation of these symptoms

after every movement of the body; bitter complaints of head-ache, sense of tension and shooting in the nape of the neck, pains in the stomach, which alternated with those of the head, striking change of countenance, falling-in of the belly, during unchanged edema of the hands and feet, constant somnolescence, light respiration, but often interrupted with deep sighs, a pulse somewhat slower than was natural to the patient's age, the seventeenth stroke being omitted, or scarcely to be felt, dry skin with partial sweats in the nape of the neck, constipation with little urine, great sensibility of the eyes, nice hearing, were the prominent signs which indicated the acute hydrocephalus. As under the symptoms which characterised the anasarca of scarlatina, I did not immediately remark the hydrophrenitic turgescence, but from the above-mentioned symptoms detected the inflammatory stage, those means were immediately used which I have proposed for this period. Half a grain of calomel was given every two hours until it procured several green stools, and colic pains. Emollient medicines by spoons-

ful were often repeated. By means of leeches behind the ears, four ounces of blood were taken away, blisters were applied, and the wounded places kept in suppuration, and the forehead was bathed with cold applications. As these remedies were not quickly followed by amendment, the pulse did not change, and the distressing pains in the head did not yield, leeches were applied for the second time on the same place, and four ounces more of blood taken away. The swelled parotid, because the patient could not use the mercurial frictions, was covered with emplastrum de ranis cum mercurio, and the whole body was kept in a gentle perspiration. Under this treatment the increased heat of the head ceased, its pains diminished, the vomiting subsided, and the pulse became more febrile. In consequence of these appearances, I made a favourable prognosis, and the great Peter Frank, whose advice was also taken, approved of my treatment, and corroborated my prognosis. The blisters were kept suppurating; the cold applications to the forehead were continued; with the calomel

a quarter of a grain of powder of digitalis was mixed, and the emollients were continued, and all the signs of the inflammatory stage had vanished. Although the calomel was given cautiously and in small dozes, viz. from four to six powders a-day, each containing half a grain, there appeared already on the tenth day from its employment, the unwished-for effect on the throat and mouth. It was consequently omitted, but the danger of effusion was already past, and the patient was suffering only that debility which was a necessary consequence of the treatment that had been pursued. The digitalis, with cream of tartar, was continued, and with the emollients, a light infusion of valerian, with a few drops of succinated spirits of hartshorn with fennel syrup. Under the use of these means, the edema of the hands and feet and the swelling of the parotid vanished, and light bitters restored the appetite. He recovered his flesh, and his powers of mind sustained no diminution from this severe affection of the head.

XXXIII.

Anna Fisher, four years old, first complained in the sixth week after a blow on the head, of all the signs of hydrocephalic turgescence; her mother sent to me on the first day of the disease. The blooming health of the child, the causes preceding, and the present symptoms, as changes of colour, giddiness, momentary insensibility, inclination to vomit after quick movement of the head, increased sensibility of the eyes, heat and pain of the head, constipation of the bowels, which in health had been daily moved, diminished secretion of urine, dryness of the skin, much thirst, entire want of appetite, without a furred tongue, and the entire loss of the active disposition of the child, all these symptoms left no doubt that the stage of turgescence was passing into the stage of inflammation.

Calomel and antiphlogistics were given internally; local blood-lettings were performed on the suffering part, proportioned to the constitution of the patient; blisters

were applied to the calves, and cold applications to the head; hardly were four ounces of blood taken, and the calomel had produced a few stools, and mustard cataplasms and the cold applications had begun to effect a revulsion, when all the symptoms vanished, and after a gentle sleep of four hours, the disease having scarcely lasted eighteen hours, the little patient was unwilling to remain longer in bed. The thirst ceased, the appetite returned, the head was free, the good temper was re-established, and all the vital functions returned to their natural state. To prevent a relapse, half a grain of calomel was given for four days, night and morning; for eight days before going to sleep, a salt foot-bath was used, and a suitable regimen was prescribed, which was accurately followed.

XXXIV.

George Black, three years and a quarter old, vaccinated, lively, full of talent, but weak, was in the month of December, on the second day after an error of

diet, and exposure to cold, and after having suffered, three weeks before, a slight agitation of the head, became morose, irritable, complained of languor, shooting pains in the head, tension in the nape of the neck, pains in the belly, inclination to vomit, want of appetite and thirst, and had already passed two days without a stool; the urine was scanty, the skin was dry, the countenance and complexion were remarkably changeable; the consideration of the previous causes, and the presence of several gastric symptoms, led the physician to use slight ecoprotica, and to order weak lemonade for drink; low diet and moderate warmth were likewise prescribed. The mixture of aqua laxat. D. V. with extracto graminis liquido, syrupo cichorei cum rheo, and Mindererus's spirit, of which, at night, some spoonsful were taken, evacuated much slime and undigested food, which had a foul smell. The boy, however, did not find himself relieved; his sleep, in which he moaned, was disturbed and interrupted by frequent whining; the pains and heat of the head, the sensibility of the

eyes, and the inclination to vomit were increased, to which was added giddiness and momentary confusion on sitting up in bed. The previously febrile pulse became slower than natural, unequal, and intermitting, the breath stinking, the respiration interrupted by sighs. The patient turned continually from one side to the other, had no stool, but vomited every thing which he took, whether medicine or food. A turbid urine, with the characteristic sediment, and a gradual sinking in of the belly, were added to these symptoms; every question irritated him to anger, and drew forth fierce answers.

There remained no doubt that the symptoms indicated the acute hydrocephalus; leeches were applied behind the ears, and four ounces of blood drawn, half a grain of calomel was given every two hours, and emollients given by spoonsful. It deserves mentioning, that after the bloodletting there was no more vomiting. Spanish flies were applied, and the wounded parts kept suppurating till all the symptoms of inflammation had vanished. A light

infusion of valerian, with mucilage of gum arabic, and a few drops of liquor cornu cervi succinatus, with aura camphora; on the return of appetite, nutritious broths, with the yolk of eggs, and a few tea-spoonsful of Tokay wine taken after food, soon completed the cure. Six weeks after the cure, the mother of this boy assured me that his powers of mind by this illness had been rather increased than diminished.

XXXV.

Anne von Kreutzer, five years old, after a slight inflammation of the throat, which for many days was followed by a constant diarrhœa, fell into this fearful disease of the head. Under the symptoms of throat-affection, I was not aware of the marks of turgescence, when suddenly those of the inflammatory period shewed themselves. Immediately leeches, calomel, emollients, and blisters, were employed, and that with such good effect that the symptoms of inflammation within three days entirely va-

nished. To avoid a relapse, this method was pursued, and it was not till seven days afterwards that light strengthening medicines were prescribed. Valerian, with radix arnicæ, in moderate doses, produced the best effect. The little patient recovered entirely, and the disease left no traces behind it.

XXXVI.

A. v. R. thirty-five years old, married, small and thin, suffered at the beginning of the year 1806, for the first time, with a spitting of blood, and soon after with an inflammation of the lungs, after which there remained a chronic cough, which was gradually removed by the suitable remedies. Scarcely did the patient consider himself in the way to a perfect cure, when, in the month of March, 1814, he had a new and far more violent attack of bloody cough, without any known cause, and the fair hopes of feeling himself happy and healthy in the

circle of his relations were disappointed. Greatly debilitated after these successive illnesses, he went out in order to strengthen himself with the fresh air of May, and sat down to rest himself on the cold earth, in a damp atmosphere, and a cutting north wind. This attempt to recover his strength had the worst effects; a violent attack of fever, with intolerable pains of the head, burning of the eyes, dislike of light, tension in the nape of the neck, and violent vomiting, threw the poor creature, immediately after his return home, on a sick bed. The patient and his physician consoled themselves with the assurance that it was only an attack of fever, which he had suffered for many springs, in connection with jaundice, and which would soon pass over. But after three days, the febrile pulse became slower than natural, and intermitting, the head-ache and vomiting more severe, with incoherent talk, and faintings on the slightest movement; in short, all the symptoms which indicate the stage of inflammation in the acute hydrocephalus appeared, with

such distinctness that a less practical physician could not easily have overlooked it. This state lasted seven days, during which all the suitable means were applied with the greatest exactness, but in vain; for a moment the patient recovered his full consciousness, but then fell into a soporose state, and all the symptoms of effusion came on. Deprived of his recollection, he expressed by signs desire for copulation, and did not become at ease till after a seminal emission. After this was repeated several times, there appeared the frightful forerunners of the last period of this disease, and on the third day from the accession of this period he died.

DISSECTION.

As the progress of this disease was the same as in children, so the dissection disclosed no peculiarity of appearance. The man had died of a pure uncomplicated hydrocephalus: hence the vessels of the membranes of the brain were turgid with blood, and in the ventricles of the brain

were found eight ounces of clear serum. Only at the basis of the cranium was there a small quantity of coagulated lymph.

XXXVII.

Herman K., three years old, born of healthy parents, vaccinated, full of life and spirits, in the month of February, during a prevalent catarrhal constitution of weather, fell into a catarrhal fever, which, by proper regimen and remedies, within six days entirely ceased. During the gradual convalescence, the mother of this child remarked a striking change in his former good temper, and in his whole external appearance. I saw the child for the first time on the third day after the attending physician had pronounced him free from fever, and found the signs of a far-gone inflammatory period. I immediately applied the most efficacious remedies, and with so good an effect that the pains in the head and the nape of the neck ceased, the vomiting subsided, the pulse became regular, and even much more febrile, stools

and urine followed in considerable quantity, the elevated sensibility of sight and hearing vanished, sighing was no longer heard, the little patient amused himself cheerfully with his playthings in bed, and ate and drank with good appetite. Three days had this boy found himself well; three nights had he slept gently; I was already willing to give the happy parents the best hopes, but my expectation, which under the same circumstances had been so often deceived, made me postpone this prognosis till the fourth day; it was fortunate that I did.

In the night of the fourth day the patient suddenly became restless, and lay sleepless; all the symptoms of effusion, though moderately, manifested themselves. The patient was easily woke out of his insensibility, reached tremblingly after things held up to him, swallowed medicines, drink, and broth, had a stool from a glyster, and passed his urine unconsciously. His speech appeared lost, yet his pulse remained, as I had never remarked it in the third stage, febrile, regular, and not intermitting. Af-

ter four-and-twenty hours there appeared the slightest symptoms of paralysis, during which the right side was paralytic, and deglutition hindered. This stage continued till the death of the little patient, for six-and-thirty-hours.

The opening of the body gave the same results as this disease always affords; only there was found on the surface very little coagulated lymph, which circumstance probably depended on the great evacuation of blood, and the blisters; for by the latter the calves of the legs, and the back, were excoriated, and kept in suppuration till the last stage of the disease.

THE

FOLLOWING FORMULÆ

ARE REPRINTED FROM THE ORIGINAL TREATISE, THOUGH OF SOME (THE DECOCTIONS) THE EXACT MODE OF PREPARATION IS NOT CLEAR.

I.

Rp. Radic. althæ. alb. unciam semis
Coq. per ¼ horæ Colat. unciarum sex.
Adde
Nitri puri drachmam semis
Syrup. ononidis
... Althææ aa unciam semis.

Every half-hour one or two table-spoonsful.

II.

Rp. Flor. malv. arbor. drachm. duas
Inf. per ⅛ horæ aq. ferv. Colat. unc. sex.
Adde
Nitri puri drachm. semis
Syrup. capill. vener.
... Ononid. aa unc. semis.

The same as the preceding.

III.

Rp. Flor. alth.
... Sambuc. aa drachm. unam
Inf. aq. fervid. per ½ hor. Colat. unc. sex.
Adde
Acet. ammon. recent. par drachm. semis
Syrup. alth. unc. unam.

To be taken as the preceding.

IV.

Rp. Rad. alth. alb. unc. semis
... Ononid. drachm. duas
Coq. per ¼ hor. s. q. aquæ Colat. unc. sex.
Adde
Acet. ammon. solut. drachm. semis
Syrup. ononid. unc. unam.

To be taken as the preceding.

V.

Rp. Rad. salep. scrup. unum
Coq. per ¼ hor. Colat. unc. sex.
Adde
Acet. ammon. solut. drachm. unam.

To be taken as the preceding.

VI.

Rp. Flor. verbasc. drachm. duas
Inf. per ½ hor. aq. ferv. Colat. unc. sex.
Adde
Nitri puri drachm. semis

Syrup. bacc. sambuc.
... ononid. aa unc. semis.

To be taken as the preceding.

VII.

Rp. Rad. alth. alb. unc. semis
Coq. c. s. q. aq. per ¼ hor.
Adde
Herb. digital. purpur. grana quatuor
Stent in infus. calid. per ¼ hor.
Colat. unc. sex.
Adde
Syrup. diacod. unc. unam.

Every hour one or two table-spoonsful.

VIII.

Rp. Flor. alth. drachm. duas
Herb. dig. purpur. grana octo
Inf. per ¼ hor. aq. ferv. Colat. unc. octo
Adde
Syrup. ononid.
... diacod. aa unc. semis.

Dose as the preceding.

IX.

Rp. Calomel
Pulv. herb. digital. purpur. aa gran. unum. et semis.
Sahar. alb. drachm. unam.
Misc. terend. per ¼ hor. in mort. marmor.
et divide in dos. æqual. N^ro. sex.

Every two hours a powder.

X.

Rp. Calomel. gran. tria
Pulv. herb. digital. gran. unum et semis
Sahar. alb. drachm. unam.
Misce ut supra et divide in dos. æqual. sex.

Every two hours a powder.

XI.

Rp. Aquæ flor. tiliæ uncias sex
Nitri puri drachm. semis
Mucil. gumm. arab. unc. semis
Syrup. alth. unc. unam.

Every hour and half one or two table spoonsful.

XII.

Rp. Aquæ flor. rhæad unc. sex
Acet. ammon. solut. drachm. semis
Muc. gumm. arab. unc. semis
Syrup. ononid. unc. unam.

Dose as the preceding.

XIII.

Rp. Olei amygd. recent. pressi unc. semis
Pulv. gg. arab. drachm. duas
Subige et affunde terendo
Aquae destill. simpl. unc. sex
Syrup alth.
... ononid. aa unc. semis.

Dose as the preceding.

XIV.

Rp. Cort. peruv. selectiss. drachm. unam
Coq. in s. q. aq. per ½ hor. Colat. unc. duarum.

Taken as directed under strengthening remedies.

XV.

Rp. Cort. peruv. select. gross. m. cont. drachm. unam
Coq. s. q. aq. per horam Col. unc. duarum.

XVI.

Rp. Cort. peruv. select. rud. contus. drachm. duas
Coq. per hor. Colat. unc. quatuor.

Dose as directed.

XVII.

Rp. Cort. peruv. select. rud. cont. unc. semis
Coq. per hor. Colat. unc. sex.

Adde

Syrup. alth.
... foenicul. aa unc. semis.

Every two hours two table-spoonsful.

XVIII.

Rp. Cort. peruv. selectiss. rud. cont. unc. semis
Coq. per ½ hor.

Adde

Rad. salep. gran. sexdecim
Coq. adhuc per ¼ hor. Colat. unc. sex.

Adde

Syrup. diacod. unc. unam.

Every two hours two table-spoonsful.

XIX.

Rp. Radic. valerian. sylvest. drachm. semis
Inf. aq. ferv. per ¼ hor. vas. el. Col. unc. trium.

Adde

Syrup. chamom.
... Papav. alb. aa drachm. tres.

Every two hours one table-spoonful.

XX.

Rp. Rad. valer. sylv. drachm. unam
Inf. ut supra. Colat. unc. quatuor.

Adde

Syrup. fœnicul. drachm. sex.

Every two hours one or two table-spoonsful.

XXI.

Rp. Rad. valer. sylv. drachm. duas
Inf. ut supra. Colat. unc. sex.

Adde

Syrup. menth. unc. unam.
Every two hours two table-spoonsful.

XXII.

Rp. Aquae flor. chamom unc. duas
Extract. rad. valer. sylv. gran. decem
Syrup. diacod. unc. semis.

Every two hours one tablespoonful.

XXIII.

Rp. Aquæ menth. piper. unc. quatuor
Extract. valer. sylv. drachm. semis
Syrup. cortic. aurant. drachm. sex.

Dose as preceding.

XXIV.

Rp. Aquæ meliss. unc. sex
Extract. valer. sylv. drachm. unam
Syrup. papav. alb. unc. unam.

Every two hours one or two table spoonsful.

XXV.

Rp. Cort. per. select. rud. cont. drachm. duas
Coq. per ½ hor.

Adde

Rad. valer. sylv. drachm. unam
Stent. in infus. calid. per ¼ hor.
Colat. unc. quatuor.

Adde

Syrup. papav. alb. drachm. sex

Dose as the preceding.

XXVI.

Rp. Flor. arnicæ drachm. semis
Inf. per ¼ hor. aq. ferv. vas. claus.
Colat. unc. trium.

Adde

Syrup. cort. aurant. unc. semis.
Spirit. nitri dulcis guttas sex.

Every two or three hours a table-spoonful.

XXVII.

Rp. Flor. arnicæ. drachm. unam
Inf. ut supra. Colat. unc. sex.
Adde
Syrup. fœnicul. unc. unam
Spirit. nitri dulcis guttas sexdecim.

Every hour one or two table-spoonsful.

XXVIII.

Rp. Rad. arnic. scrup. duos
Inf. ut supra. Colat. unc. trium.
Adde
Syrup. papaver. alb. unc. semis
Liquor. anodyn. min. Hofmann. guttas decem.

Every one or two hours a table-spoonful.

XXIX.

Rp. Rad. arnicæ scrup. quatuor
Inf. ut supra. Colat. unc. sex.
Adde
Syrup. papav. alb.
... hysop. aa unc. semis
Spirit. nitri dulcis guttas viginti.

Every two hours two table-spoonsful.

XXX.

Rp. Rad. arnicæ drachm. unam
... valerian sylv. scrup. quatuor
Inf. s. q. aquæ fervid. per $\frac{1}{4}$ hor. vase cl.
Colat. unc. sex.
Adde
Syrup. ononid.
... cort. aurant. aa unc. semis.

Every two hours two table-spoonsful.

XXXI.

Rp. Flor. arnicæ drachm. semis
Rad. valerian. sylv. scrup. duos
Inf. ut supra. Colat. unc. quatuor.
Adde
Syrup. papav. alb.
... cort. aurant. aa unc. semis.

Every one or two hours one table-spoonful.

XXXII.

Rp. Extract. valer. sylv. drachm. semis
Syrup. diacod.
... ononid. aa unc. semis.

Every hour one tea-spoonful.

XXXIII.

Rp. Extract. valer. sylv. drachm. unam
Syrup. menth.
... papav. alb. aa drachm. sex.

Dose as preceding.

XXXIV.

Rep. Extract. valer. sylv. drachm. unam
... cort. peruvian. drachm. semis
Syrup. alth.
diacod. aa drachm. sex.

Every hour one tea-spoonful.

XXXV.

Rp. Extract. valer. sylv. drachm. unam
... arnicæ gran. decem
Syrup. ononid.
... diacod. aa drachm. sex.

Every two hours two tea-spoonsful.

XXXVI.

Rp. Extract. valer. sylv. drachm. unam
... flor. chamom. drachm. semis.
Syrup. pap. alb. unc. unam et semis.
Every one or two hours one or two tea-spoonsful.

XXXVII.

Rp. Extract. valer. sylv. drachm. unam
Mucil. gum. arab. unc. semis
Syrup. chamom. unc. unam.
Dose as preceding.

XXXVIII.

Rp. Aquæ fœnicul. unc. quatuor
Extract. tarax. liquid. drachm. tres
Syrup. cort. aurant. unc. semis.
Every two hours one table-spoonful.

XXXIX.

Rp. Moschi veri optimi gran. unum
Subige cum mucil. gum. arab. unc. semis.
Adde
Inf. herb. digital. ex gran. quatuor parati unc.
quatuor
Syrup. diacod. unc. semis.
Every two hours one table-spoonful.

XL.

Rp. Moschi veri optimi grana duo
Subige cum
Mucil. gum arab. drachm. sex.
Adde
Infusi herbi. digital. ex gran. sex parati unc. sex
Syrup. diacod. unc. unam.
Every hour one or two table-spoonsful.

XLI.

Rp. Inf. herb. digital. purp. ex gran. quatuor parati
unc. quatuor
Mucil. gum. arab. unc. semis.
Liquor. c. c. succin. guttas quindecim
Syrup. chamom.
... diacod. aa drachm. tres.

Every one or two hours one table-spoonful.

XLII.

Rp. Herb. digital. purp. gran. quatuor — sex
Rad. valer. sylv. drachm. unam — unam et semis
Inf. per ¼ hor. vas. claus. Colat. frigefactæ unc.
quatuor — sex.
Adde
Liquor. c. c. succin. scrup. unum — drachm. semis
Syrup. diacod. unc. unam — unc. unam. et semis.

Every hour one or two table-spoonsful.

XLIII.

Rp. Aquæ fœnicul. unc. quatuor
Extract. arnic. gran. sex
Liquor. c. c. succ. guttas quindecim
Syrup. ononid. drachm. sex.

Every two hours one table-spoonful.

XLIV.

Rp. Aquæ chamom. unc. quatuor
Extract. arnicæ gran. sex
... ... cort. peruv. drachm. unam
Syrup. cort. aurant. drachm. sex.

Every two hours one table-spoonful.

XLV.

Rp. Rad. arnicæ drachm. semis
Inf. aq. ferv. per ¼ hor. vas. cl. Colat. unc. trium.
Adde
Spirit. nitri dulcis guttas sex
Syrup. fœnicul. drachm. sex.

Every two hours one table-spoonful.

XLVI.

Rp. Inf. rad. arnic. ex drachm. una parati unc. quatuor.
Adde
Syrup. menth. drachm. sex
Æther. vitriol. guttas decem.

Every hour one table-spoonful.

XLVII.

Rp. Moschi veri optimi gran. tria
Sahar. alb. drachm. duas
M. terendo per ¼ hor. et divide in doses æqual. N^ro. duodecim.

Every hour one powder.

XLVIII.

Rp. Moschi veri optimi gran. sex
Sahar. alb. drachm. duas
M. ut supra et divide in doses æquales N^ro. duodecim.

Every one or two hours a powder.

XLIX.

Rp. Extract. valer. sylv. drachm. unam, tinctur. castor.
guttas viginti
Mucil. gum. arab.
Syrup. diacod. aa unc. semis
Aquæ flor. chamom. unc. tres.

Every two hours one table-spoonful.

L.

Rp. Camphor. subact. gran. unam
Extract. valer. sylv. drachm. unam
Syrup. diacod. drachm. sex
Aquæ meliss. uncias quatuor.

Every two hours one table-spoonful.

LI.

Rp. Cort. Peruv. sel. gros. mod. cont. drachm. tres
Coq. s. q. aq. per $\frac{1}{2}$ hor. ad fin. coct.
Adde
Rad. arnic. scrupl. duos
St. in inf. vas. cl. per $\frac{1}{4}$ hor. Colat. unc. quatuor.
Adde
Liq. anod. min. Hofmann. guttas quindecim
Syrup, diacod. unc. unam.

Every one or two hours one table-spoonful.

THE END.

Printed by A. and R. Spottiswoode,
Printers-Street, London.

Likewise, about to be published,

A TREATISE

ON THE

HYDROCEPHALUS CHRONICUS,

BY

LEOPOLD ANTHONY GOLIS

TRANSLATED FROM THE GERMAN

By R. G.

MEDICAL WORKS

Recently published by

LONGMAN, HURST, REES, ORME, AND BROWN, LONDON.

MR. ABERNETHY.

The SURGICAL and PHYSIOLOGICAL WORKS of JOHN ABERNETHY, F.R.S.&c. complete in 3 vols. 8vo. Price 2*l.* 3*s.* 6*d.* Bds. consisting of—Part I. On the Constitutional Origin, Treatment of Local Diseases, and on Aneurisms, 8*s.*—Part II. On Diseases resembling Syphilis, and on Diseases of the Urethra, 6*s.*—Part III. On Injuries of the Head, and Miscellaneous Subjects, 7*s.*—Part IV. On Lumber Abscesses and Tumours, 6*s.*—An Inquiry into the Probability and Rationality of Mr. Hunter's Theory of Life, 4*s.* 6*d.*; an Introductory Lecture for the Year 1815, exhibiting some of Mr. Hunter's Opinions respecting Diseases, 2*s.* PHYSIOLOGICAL LECTURES, exhibiting a general View of Mr. Hunter's Physiology, and of his Researches in Comparative Anatomy, delivered before the Royal College of Physicians, in the Year 1817, 8*s.*; and the HUNTERIAN ORATION for the Year 1819, 2*s.* 6*d.*

DR. BATEMAN.

REPORTS on the DISEASES of LONDON, and the State of the Weather, from 1804 to 1816, including Practical Remarks on the Causes and Treatment of the former; and preceded by a Historical View of the State of Health and Disease in the Metropolis in past Times, in which the Progress of the extraordinary improvement in Salubrity, which it has undergone, the Changes in the Character of the Seasons in this respect, and the Causes of these, are traced to the present Period. By THOMAS BATEMAN, M.D. F.L.S. &c. late Physician to the Public Dispensary, and consulting Physician to the Fever Institution in London. In 8vo. 9*s.* Bds.

A SUCCINCT ACCOUNT of the CONTAGIOUS FEVER of this Country, as exemplified in the Epidemic now prevailing in London, with the appropriate Method of Treatment, as practised in the House of Recovery, and pointing out the Means of Prevention. By THOMAS BATEMAN, M.D. 2nd Edit. 8vo. Price 6*s.* Bds.

DELINEATIONS of the CUTANEOUS DISEASES, comprised in the Classification of the late Dr. Willan; including the greater part of the Engravings of that Author, in an improved State, and completing the Series as intended to have been finished by him. By T. BATEMAN, M. D. In 1 vol. 4to. with upwards of 70 coloured plates. Price 12*l.* 12*s.* boards.

The Series of New Engravings, representing those Diseases which should have been figured in the subsequent parts of Dr. Willan's unfinished Work, may be had by the possessors of that Work, separate. Price 7*l.* Boards.

A PRACTICAL SYNOPSIS of CUTANEOUS DISEASES, according to the Arrangement of Dr. WILLAN, exhibiting a concise View of the Diagnostic Symptoms, and the Method of Treatment. By THOMAS BATEMAN, M. D.

In 8vo. (illustrated by a coloured Plate of the Eight Orders), the Fifth Edition. 12*s.* Bds.

MR. BRODIE.

PATHOLOGICAL and SURGICAL OBSERVATIONS on DISEASES of the JOINTS. By B. C. BRODIE, F. R. S. Assistant Surgeon to St. George's Hospital, and Lecturer on Surgery. In 1 Vol. 8vo. illustrated by Plates. Price 16*s.* Bds.

MR. CHARLES BELL.

The ANATOMY of the HUMAN BODY, containing the Anatomy of the Bones, Muscles, Joints, Heart, and Arteries.

By JOHN BELL, Surgeon.

And that of the Brain and Nerves, the Organs of the Senses, and the Viscera.

By CHARLES BELL, Surgeon.

In 3 vols. 8vo. (with numerous Engravings), price 2*l.* 12*s.* 6*d.* Boards. The Fourth Edition.

ILLUSTRATIONS of the Great OPERATIONS of SURGERY, TREPHINE, HERNIA, AMPUTATION, ANEURISM, and LITHOTOMY. By CHARLES BELL.

Part I. to. IV.

The Work will consist of Five Parts in large 4to. each Part containing Four Plates, with Letter-Press, price 15*s.* plain, or 21*s.* coloured impressions.

By the same Author,

A SYSTEM of OPERATIVE SURGERY, founded on the Basis of Anatomy. In 2 vols. 8vo. Price 1*l.* 18*s.* Bds. The 2d Edit. (illustrated with upwards of 100 Engravings).

This Edition includes a Dissertation on Gun-shot Wounds, by the same Author.

The ANATOMY of the BRAIN; explained in a Series of Engravings, beautifully coloured, with a Dissertation on the Communication between the Ventricles of the Brain.

In royal 4to. Price 2*l.* 2*s.* in Boards.

A SERIES of ENGRAVINGS, explaining the Course of the Nerves. New Edition. Price 1*l.* 1*s.* in Boards.

A DISSERTATION on GUN-SHOT WOUNDS. In royal 8vo. illustrated by 17 Engravings, Price 10*s.* 6*d.* in Boards. Uniform with the First Edition of the Operative Surgery.

ENGRAVINGS of the ARTERIES, illustrating the Second Volume of the Anatomy of the Human Body, by JOHN BELL, Surgeon; and serving as an Introduction to the Surgery of the Arteries, by CHARLES BELL, Surgeon.

Superbly printed in Imperial 8vo. The Third Edition. Price 15*s.* in Boards; or with Plates, finely coloured, Price 1*l.* 1*s.* Boards.

ENGRAVINGS from SPECIMENS of MORBID PARTS, preserved in Mr. Charles Bell's Collection now in Windmill Street, and selected from the Divisions inscribed Urethra, Vesica, Ren, Morbosa et Læsa.

Fasciculus I. Price 1*l.* 16*s.* sewed.

A SYSTEM of DISSECTIONS; explaining the Anatomy of the Human Body; and pointing out to the Student the Objects most worthy his Attention, during a Course of Dissections. The 3d Edit. 2 vols. foolscap. Price 12*s.* Bds.

MR. JOHN BELL.

The PRINCIPLES of SURGERY, as they relate to Wounds, Ulcers, and Fistulas; Aneurism and Wounded Arteries; Fractures of the Limbs; and the Duties of the Military and Hospital Surgeon.

By JOHN BELL, Surgeon.

In 3 large vols. royal 4to. illustrated by upwards of 160 Engravings, many of them accurately coloured from Nature. Price 7*l.* 4*s.* Boards.

——— Volume the Second, may be had separate. Price 3*l.* 12*s.* bds.

——— Volume the Third, separate. Price 1*l.* 4*s.* Bds.

ENGRAVINGS of the BONES, MUSCLES, and JOINTS, illustrating the First Volume of the Anatomy of the Human Body.

By JOHN BELL, Surgeon. In 4to. with about 200 Pages of Explanatory Letter-press. The Third Edition. Price 1*l.* 11*s.* 6*d.* in Boards.

DR. BLACKALL.

OBSERVATIONS on the NATURE and CURE of DROPSIES.

By JOHN BLACKALL, M. D.

Physician of the Devon and Exeter Hospital, and of the Lunatic Asylum, near Exeter.

In 8vo. the Third Edition, Price 10*s.* 6*d.* Boards.

PROFESSOR BURNS.

The PRINCIPLES of MIDWIFERY,

By JOHN BURNS, C. M.

Regius Professor of Surgery, in the University of Glasgow, &c. &c.

The Fifth Edition. In 8vo. Price 14*s.* in Boards.

POPULAR DIRECTIONS for the TREATMENT of the DISEASES of WOMEN and CHILDREN. By JOHN BURNS, C. M.

In 8vo. Price 9*s.* in Boards.

MR. S. COOPER.

A DICTIONARY of PRACTICAL SURGERY; comprehending all the most interesting Improvements up to the present Period; also an Account of the Instruments, Remedies, and Applications employed in Surgery; the Etymology and Signification of the principal Terms; a copious Bibliotheca Chirurgica; and a Variety of original Facts and Observations. By SAMUEL COOPER. The Third Edition, revised, corrected, and enlarged. In one thick Volume 8vo. Price 1*l.* 4*s.* Boards.

The FIRST LINES of the PRACTICE of SURGERY, designed as an Introduction for Students, and a concise Book of Reference for Practitioners. By S. COOPER. 4th Edition, very much improved and enlarged, with several new Plates, in 2 Vols. 8vo. 1*l.* 10*s.* Bds.

DR. COOKE ON NERVOUS DISEASES.

In Two Vols. Volume I. Price 12*s.* bds.

ON APOPLEXY, including Apoplexia Hydrocephalica, or Water in the Head; with an Introductory Account of the Opinions of ancient and modern Physiologists, respecting the Nature and Uses of the Nervous System.

By JOHN COOKE, M.D. F.A.S.

The HISTORY and METHOD of CURE of the various Species of PALSY; being the first Part of the second Volume of a Treatise on Nervous Diseases.

By JOHN COOKE, M.D. F.A.S.

In 8vo. Price 6*s.* Boards.

MR. CARMICHAEL.

OBSERVATIONS on the Symptoms and Specific Distinctions of VENEREAL DISEASES; interspersed with Hints for the more effectual prosecution of the present Inquiry into the uses and abuses of Mercury in their Treatment. By RICHARD CARMICHAEL, M.R.I.A.

In 8vo. Price 9*s.* boards.

An ESSAY on the VENEREAL DISEASES, which have been confounded with Syphilis and the Symptoms which exclusively arise from that Poison. Illustrated by Drawings of the Cutaneous Eruptions of true Syphilis, and the resembling Diseases. By RICHARD CARMICHAEL, M. R. I. A. &c. In Quarto, with coloured Plates. Price 1*l.* 18*s.* Boards.

MR. A. COOPER AND MR. TRAVERS.

SURGICAL ESSAYS.

By ASTLEY COOPER, F.R.S. Surgeon to Guy's Hospital, and BENJAMIN TRAVERS, F.R.S. Surgeon to St. Thomas's Hospital.

Part I. the Third Edition, Price 10*s.* 6*d.* Boards.

Part II. 2nd Edit. in 8vo. price 10*s.* 6*d.*

A SYNOPSIS of the DISEASES of the EYE, and their TREATMENT; to which is prefixed, a short Anatomical Description, and Sketch of the Physiology of that Organ.

By BENJAMIN TRAVERS, F.R.S.

Surgeon to St. Thomas's Hospital.

In 1 Vol. 8vo. with six highly finished coloured Engravings, price 1*l.* 5*s.* boards.

An INQUIRY into the PROCESS of NATURE in repairing Injuries of the Intestines; illustrating the Treatment of penetrating Wounds and Strangulated Hernia.

By BENJAMIN TRAVERS, F. R. S.

1 vol. 8vo. with Engravings by Stewart. 15*s.* Boards.

DR. CLUTTERBUCK.

OBSERVATIONS on the NATURE and TREATMENT of the EPIDEMIC FEVER at present prevailing in the Metropolis, as well as in most Parts of the United Kingdom. To which are added, Remarks on some of the Opinions of Dr. Bateman, in his late Treatise on this Subject.

By HENRY CLUTTERBUCK, M. D.

In 8vo. price 8*s.* Boards.

MR. CARLISLE.

An ESSAY on the DISORDERS of OLD AGE, and on the Means for prolonging Human Life. By ANTHONY CARLISLE, F. R. S. A. F. L. S. &c. &c. The Second Edition, with several important additions. In 8vo. Price 5*s.* Boards.

The HUNTERIAN ORATION, delivered before the Royal College of Surgeons in London, on Monday, February 21, 1820. By ANTHONY CARLISLE, F.R.S. F.S.A. F.L.S.

In 4to. Price 5*s.* sewed.

DR. J. CLARKE.

COMMENTARIES on some of the most IMPORTANT DISEASES of CHILDHOOD.

Part the First,—Containing Observations on the Mortality of Children—on Diet—Dentition—Convulsive Affections—Inflammation of the Brain—Hydrocephalus internus—and Epilepsy. By JOHN CLARKE, M. D. &c. In royal 8vo. Price 10*s.* 6*d.* Boards.

DUBLIN MEDICAL TRANSACTIONS.

TRANSACTIONS of the ASSOCIATION of Fellows and Licentiates of the King's and Queen's College of Physicians in Ireland. Vol. I. price 14*s*., Vol. II. price 16*s*., and Vol. III. price 14*s*. Boards.

DR. FARRE.

A TREATISE on some PRACTICAL POINTS relating to the DISEASES of the EYE. By the late JOHN CUNNINGHAM SAUNDERS, Demonstrator of Anatomy at St. Thomas's Hospital, Founder and Surgeon of the London Infirmary for Curing Diseases of the Eye.

To which is added, a short Account of the Author's Life, and his Method of curing the Congenital Cataract, by his Friend and Colleague, J. R. FARRE, M. D.

Third Edition, with Additions, in Demy 8vo. illustrated with Eight Engravings, and a Portrait of the Author. Price 14*s*. plain, and 1*l*. 5*s*. with the Plates coloured.

The MORBID ANATOMY of the LIVER, being an Inquiry into the Anatomical Character, Symptoms, and Treatment of certain Diseases which Impair or Destroy the Structure of that Viscus. By J. R. FARRE, M. D.

Part I. and II. in Imperial Quarto, Price 15*s*. each.

Part III. is preparing for the Press.

PATHOLOGICAL RESEARCHES in MEDICINE. By J. R. FARRE, M. D.

Essay I. On MALFORMATIONS of the HUMAN HEART; illustrated by numerous Cases, and Five Plates, in royal 8vo. Price 7*s*. Sewed.

Part II. is preparing for the Press.

SIR A. B. FAULKNER.

A TREATISE on the PLAGUE, designed to prove it Contagious, from Facts, collected during the Author's Residence in Malta, when visited by that Malady in 1813; with Observations on its Prevention, Character, and Treatment. By Sir ARTHUR BROOKE FAULKNER, M.D. Fellow of the Royal College of Physicians; late Physician to his Majesty's Forces, &c.

In 8vo. Price 12*s*. Bds.

MR. GOODWIN.

AN ACCOUNT of the various MODES of SHOEING HORSES, employed by different Nations; more particularly a Comparison between the English and French Methods. With Observations on the Diseases of the Feet, connected with Shoeing. By JOSEPH GOODWIN, Esq. Veterinary Surgeon to his Royal Highness the Prince Regent. In 8vo. with Plates, 12*s*. Bds.

MR. GUTHRIE.

OBSERVATIONS on GUN-SHOT WOUNDS, being the general Result of the Practice of the whole of the Peninsular War. By G. J. GUTHRIE. In 8vo. with Four Plates, 12*s*. Bds.

DR. HASLAM.

SOUND MIND, or Contributions to the Natural History and Physiology of the Human Intellect. By JOHN HASLAM, M. D. late of Pembroke Hall, Cambridge; formerly President of the Royal Medical, Natural History, and Chemical Societies of Edinburgh. 8vo. 7*s*. Bds.

MR. HOWSHIP.

PRACTICAL OBSERVATIONS on the Symptoms, Discrimination, and Treatment of some of the most common Diseases of the lower Intestines and Anus; to which are added, some Suggestions upon a new and successful Mode of correcting habitual Confinement in the Bowels, to ensure their regular Action without the Aid of Purgatives. By J. HOWSHIP, Member of the Royal College of Surgeons in London; Member of the Medico-Chirurgical Society; and Corresponding Member of the Société Médicale d'Emulation, in Paris. In 8vo. Price 8*s*. 6*d*. Bds.

PRACTICAL OBSERVATIONS in SURGERY and MORBID ANATOMY. With Cases, Dissections, and Engravings. By JOHN HOWSHIP. In 8vo. Price 18*s*. Bds.

DR. M. HALL.

CASES of a SERIOUS MORBID AFFECTION, principally incident to Females after Delivery, Abortion, &c. and arising from Uterine Hæmorrhagy, undue Venæsection, Menorrhagia, protracted Lactation, Diarrhœa, Aphthæ, Constipation, Scybalæ, or other Causes of Exhaustion and Irritation.

By MARSHAL HALL, M.D. F.R.S.E. &c. price 4s.

By the same Author,

A DESCRIPTIVE, DIAGNOSTIC, and PRACTICAL ESSAY on DISORDERS of the DIGESTIVE ORGANS and GENERAL HEALTH; being an Attempt to prosecute the Views of Dr. Hamilton and Mr. Abernethy, and a Second Edition of the Essay on the Mimoses, with Additions. In 8vo. price 7*s*. boards.

On DIAGNOSIS, in Four Parts.—The Phœnomena of Health and Disease.—Of the Diseases of Adults.—Of Local Diseases.—Of the Diseases of Children, in 8vo. 16*s*. boards.

MR. HUTCHINSON.

CASES of TIC DOULOUREUX successfully treated. By BENJAMIN HUTCHINSON, Member of the Royal College of Surgeons of London, &c. Price 3*s*. 6*d*.

DR. MARCET.

AN ESSAY on the CHEMICAL HISTORY and MEDICAL TREATMENT of CALCULOUS DISORDERS.

By ALEXANDER MARCET, M.D. F.R.S.

2d Edit. Royal 8vo. with Plates. 18*s*. Boards.

DR. MAGENDIE.

PHYSIOLOGICAL and MEDICAL RESEARCHES into the Causes, Symptoms, and Treatment of Gravel. Translated from the French of F. MAGENDIE, M.D. Professor of Anatomy, Physiology, &c. &c. at Paris. 12mo. 3*s*. 6*d*. Bds.

MEDICAL TRANSACTIONS, published by the College of Physicians in London. Vol. 6, in 8vo. with coloured Plates, Price 12*s*. Bds.

Also may be had, Vols. 1 to 5, Price 2*l*. 8*s*. Bds.

M. P. ORFILA.

DIRECTIONS for the TREATMENT of PERSONS who have TAKEN POISON, and those in a state of Suspended Animation; together with the Means of detecting Poisons and Adulteration in Wine: also, of distinguishing Real from Apparent Death. By M. P. ORFILA. Translated from the French, by R. H. BLACK, Surgeon. The 2nd edit. In 1 vol. 12mo. 5*s*. Bds.

DR. POWELL.

The PHARMACOPŒIA of the ROYAL COLLEGE of PHYSICIANS of LONDON, 1809. Translated into English, with Notes, &c. by R. POWELL, M.D. Fellow of the College, Physician to St. Bartholomew's and the Magdalen Hospitals.

A New Edition, revised and corrected. In 8vo. Price 12*s.* Boards.

DR. SWEDIAUR.

A COMPREHENSIVE TREATISE upon the Symptoms, Consequences, Nature, and Treatment of VENEREAL or SYPHILITIC DISEASES. Translated from the Seventh French Edition of F. SWEDIAUR, M.D. In 2 Vols. 8vo. Price 1*l.* 4*s.* Boards.

MR. A. T. THOMSON.

The LONDON DISPENSATORY; containing—1. Pharmacy—2. The Botanical Description, Natural History, Chemical Analysis, and Medicinal Properties, of the Substances of the Materia Medica.—3. The Pharmaceutical Preparations and Compositions of the Pharmacopœias of the London, Edinburgh, and Dubl Colleges of Physicians. The whole forming practical Synopsis of Materia Medica, Pharmac and Therapeutics: illustrated with many usef Tables and Copper-plates of Pharmaceutical A paratus.

By ANTHONY TODD THOMSON, F. L. S. In One large Vol. 8vo. (revised and altered a cording to the last Edition of the London a Edinburgh Pharmacopœias). 15*s.* Bds. 2d Ed

*** This edition contains the synonyma of t names of the articles, in the French, Germa Italian, Spanish, and East Indian languages.

DR. J. THOMSON.

An ACCOUNT of the VARIOLOI EPIDEMIC, which has lately prevailed at Ed burgh and other Parts of Scotland; with Obser tions on the Identity of Chicken Pox with modif Small Pox; in a Letter to Sir James M'Grig Director General of the Army Medical Depa ment, &c. &c. By JOHN THOMSON, M F.R.S.E. &c. &c. &c. In 8vo. Price 10*s.* 6*d.* Bd

THE FOLLOWING WORKS ARE PREPARING FOR PUBLICATION

SURGICAL OBSERVATIONS; being a Quarterly Report of Cases in Surgery. By CHARLES BELL.

The First Volume is already published, in 4 Parts, illustrated with Plates, Price 1*l.* 4*s.* This Volume contains Reports—Of the Treatment of Cancer by Compression—Of Soft Cancer—Of Ulcerations of the Throat which cause Suffocation—Of Tumors which arise from the Gums—Of Abscess and Fistula connected with the Urethra—Of the Structure and Diseases of the Prostate Gland—Of the Pulmonary Diseases which attend Surgical Operations—Of sounding for the Stone, where it is sacculated—Of Counter Fissure—Of the Nitro-muriatic Bath in Cutaneous Diseases, which resemble Syphilis, &c.—Of wounded Arteries—Of Fractures.

Part VI. will be published shortly. Price 6s.

MEDICO-CHIRURGICAL TRANSACTIONS, published by the Medical and Chirurgical Society of London. Volume XI. Part II.—Vols. 1 to 10 may be had, Price 9*l.* 3*s.* Boards, illustrated with Plates.

Also, Volume XI. Part I. Price 9*s.* Bds.

MR. C. M. CLARKE.

OBSERVATIONS on those DISEASES of FEMALES, which are attended by DISCHARGES.

By CHARLES MANSFIELD CLARKE, Member of the Royal College of Surgeons; and Lecturer on Midwifery in London.

In royal 8vo. illustrated with Plates.

Part the Second, including the White Opake Discharge, the Watery Discharge, and Purul Discharge. The Diseases comprehended un these heads are, Inflammation of the Cer Uteri—Cauliflower Excrescence of the Os U —the Oozing Tumour of the Labia—Hydatid the Uterus—Ulcerated Carcinoma, or Cance the Uterus—Ulceration and Abscess of the Vag together with some Observations upon disord Menstruation.

At the same time will be published,

A New Edition of Part I. of the above Wor On Mucous Discharges. In royal 8vo. Plates.

DR. GRANVILLE.

MEMOIRS on the PRESENT STA of SCIENCE and SCIENTIFIC INSTITUTI in FRANCE: containing a Descriptive and torical Account of the Royal Garden of Pla the Royal Institute; the Polytechnic School Faculty of Sciences; the College of France; the Cabinet of Mineralogy; the Public Libra the Medical School; and the Hospitals. Plans of the latter never before published, &c

Interspersed with ANECDOTES and BIOGRAPH SKETCHES of all the EMINENT CHARACTERS have appeared in France during and since Revolution, in the various Departments of Sci Accompanied with Observations upon Writings, Inventions, Discoveries, and P Conduct.

By A. B. GRANVILLE, M.D. F.R.S. F.L.S. M

In Two Vols. 4to. Illustrated by Numero Plates and Tables.